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LCD Monitor User Manual

Version 3.0 (Updated 1.17.2012)

LM-0750W
LM-0950W
LM-1760W
LM-1760WF
LM-2140W
LM-2340W
LM-2461W

This manual is based on firmware version 9.45-1777. If you have an older or newer firmware version some of the functions mentioned in this manual may not be present or may operate differently.

We are committed to your satisfaction with this product. If you have any questions or require technical assistance please contact us at any of the coordinates below:

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Safety Precautions

- All operating instructions must be read and understood before the product is operated.
- These safety and operating instructions must be kept in a safe place for future reference.
- All warnings on the product and in the instructions must be observed closely.
- All operating instructions must be followed.
- Do not use attachments or accessories not recommended by the manufacturer. Use of inadequate attachments may result in serious accidents.
- Do not place heavy objects on the power cord. Route power cord to prevent people from stepping on or resting objects on the cord. Check to ensure that both outlet and product connection points are properly seated and secured.
- This product must be operated on a power source as specified on the specification label or product screening. Always operate the product within the voltage range specified.
- Do not overload AC outlets or extension cords. Overloading can cause fire or serious electric shock.
- Never insert an object into the product through vents or openings as this can cause serious electric shock or damage to the product.
- Do not expose product to water or other liquids as this can lead to electrical shock or permanent damage to the equipment.
- Do not attempt to service the product yourself. Removing covers can expose you to high voltage and other unsafe conditions. Please seek the assistance of a qualified service professional for all service needs.
- If any of the following occur, unplug the power cord from the AC outlet and consult a qualified service professional to perform repairs:
    - Power cord or plug becomes damaged.
    - When any liquid is spilled on or in the product.
    - When the product has been exposed to rain or water.
    - When the product does not operate properly as described in the instruction manual.
    - When the product has been dropped or damaged.
    - When the product displays any abnormal operating condition.
- If the product requires replacement parts, make sure that the service person uses replacement parts specified by the manufacturer, or those equivalent parts having the same characteristics and performance specifications as the original parts. Use of unauthorized parts can result in fire, electric shock, and/or other damage.
- Upon completion of any service or repair work, request that the service technician perform safety checks to ensure that the product is in proper working order.
- When mounting the product to a wall, ceiling, or within a rack/enclosure, be sure to install the product according to the instructions of both the mount and monitor manufacturer.
- Unplug the power cord from the AC Outlet before cleaning the product.
- For Proper Screen Maintenance please follow the guidelines below to prevent scratches, discoloration, or other damage to the LCD panel:
    - Avoid striking the screen with any object.
    - Do not wipe screen hard. Apply only gentle pressure if cleaning.
    - Do not wipe the screen with solvents such as alcohol, paint thinner, or benzene as this can cause permanent damage to the LCD panel.
    - Do not spray detergent or other cleaners directly on the monitor or LCD panel.
    - Do not write on the LCD panel with any substance or object.
    - Do not paste or stick anything to the screen as any adhesive can cause damage to the LCD panel.
    - Screen may be cleaned by gently wiping with lint free cloth to remove dust. For more thorough cleaning use a lint free cloth that has been very lightly dampened with distilled water. Please dry any excess moisture from the monitor or LCD panel immediately to prevent damage.

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Safety Precautions

- For proper chassis maintenance please follow the guidelines below to avoid any potential damage:
  - Do not wipe the chassis with solvents such as alcohol, paint thinner, or benzene.
  - Do not expose the cabinet to any volatile substances.
  - Do not allow prolonged contact with rubber or plastic.
  - Apply only gentle pressure to chassis when cleaning.
  - To clean use soft, lint free cloth to remove dust. A lightly dampened cloth, as described in the screen maintenance section, may also be used to clean the chassis.
- Take care in moving this product as serious injury or death can result from the sudden shifting or falling of this object.
- The vents and openings in the product's chassis are designed for ventilation. Do not cover, block, or otherwise obstruct these vents and openings as insufficient ventilation can cause overheating and/or shorten the life of the product. Do not place the object on a bed, sofa, rug, or other similar surface as this can result in serious obstruction of ventilation areas. If using in enclosed space make sure to provide proper ventilation to maintain allowable operating temperature range.
- The LCD panel used in this product contains glass and can cause serious injury if broken. If the unit is dropped or otherwise damaged take care to avoid possible injury by glass shards.
- Keep this product away from heat generating sources such as radiators, heaters, stoves, or other heat generating products.
- Avoid prolonged exposure to direct sunlight as this can cause damage to the LCD Panel.

FCC (Federal Communications Commission)
This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interface when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Warning: Changes or modifications not expressly approved by the manufacturer responsible for compliance void the user's authority to operate the equipment.

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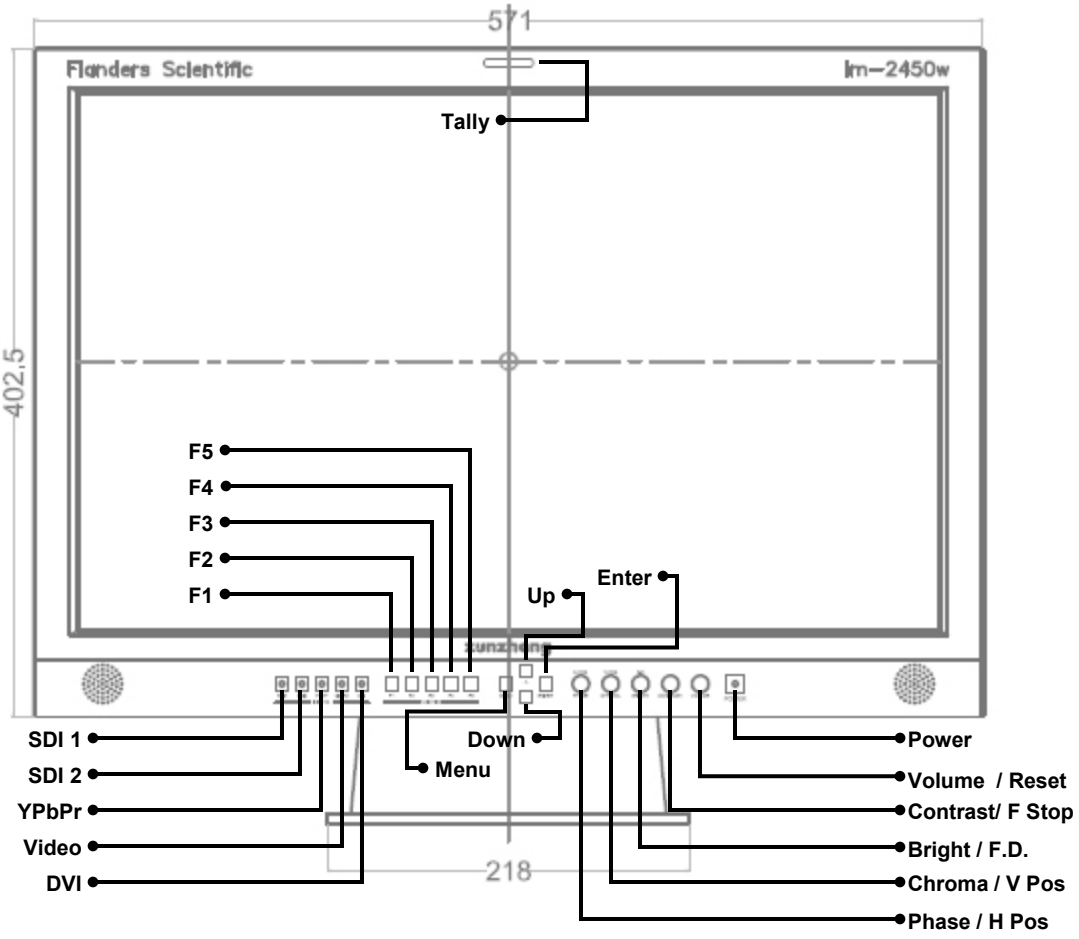
Parts & Their Functions

Front



- **SDI 1**: Used to select SDI Input 1 as the active Input.
- **SDI 2**: Used to select SDI Input 2 as the active Input.
- **YPbPr**: Used to select the Component Analog Input as the active Input.
- **Video**: Used to select the Composite Analog Input as the active Input.
- **DVI**: Used to select the DVI-I Input as the active Input. DVI-Digital / DVI-Analog toggle is available from the System (Menu/System/DVI Selection).
- **F1**: assignable function key. This key's function is selectable from the Function Menu.
- **F2**: assignable function key. This key's function is selectable from the Function Menu.
- **F3**: assignable function key. This key's function is selectable from the Function Menu.
- **F4**: assignable function key. This key's function is selectable from the Function Menu.
- **F5**: assignable function key. This key's function is selectable from the Function Menu.
- **Menu**: Used to enable on screen menu.
- **Up**: Used in combination with Down and Enter Keys to navigate On Screen Menu.
- **Down**: Used in combination with Up and Enter Keys to navigate On Screen Menu.
- **Enter**: Used in combination with Up and Down Keys to navigate On Screen Menu. The Enter button is used to confirm selections within the On Screen Menu.
- **Power**: Used to turn power on/off.
- **Volume:** Used to adjust volume. Press down on this knob to instantly mute or unmute the volume.
- **Contrast:** Used to adjust contrast higher or lower. Pressing down on the center of this button will return the contrast setting to its default position.

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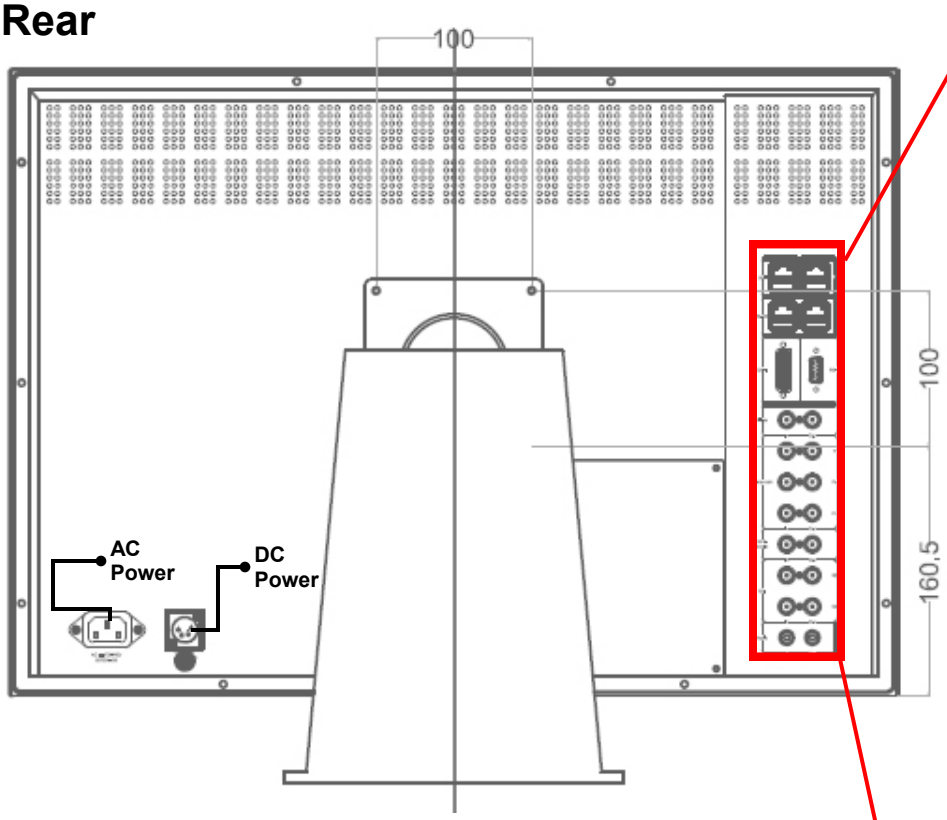
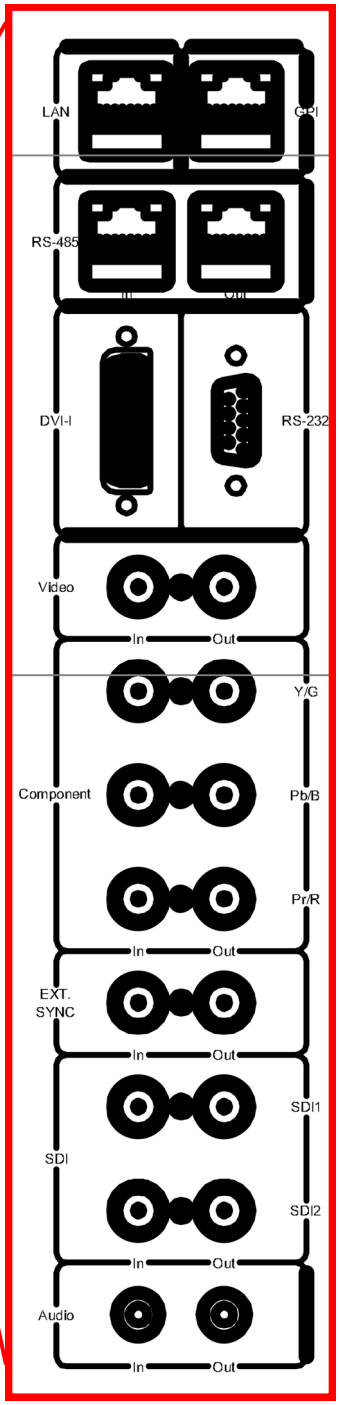
Parts & Their Functions

- **Bright/F.D./Ref Pos.**: Used to adjust brightness higher or lower. Pressing down on the center of this button will return the brightness setting to its default position. The brightness knob should NOT be used increase the overall peak white luminance of the unit, use the BACKLIGHT setting on the video menu to adjust overall luminance.
- **Chroma / V Pos**: Used to adjust chroma higher or lower. Pressing down on the center of this button will return the chroma setting to its default position.
- **Phase / H Pos**: Used to adjust phase. Pressing down on the center of this button will return the setting to default. Hue is locked by default on SDI, but can be unlocked from the SDI Hue Adjustment option on the System Menu.
- **Tally**: Three color tally lamp controlled via remote control.

Rear





- **LAN**: Inactive—Factory Use Only.
- **GPI**: General Purpose Interface for Contact Closure Remote Control. Remote Control Functions can be assigned from Monitor Main Menu.
- **RS-485**: RS-485 Ports (In/Out) for looping remote control interface.
- **DVI-I**: DVI-I Input. Supports both DVI-Analog & DVI-Digital. Analog/ Digital Toggle is found on System Menu.
- **Video In/Out**: Composite Video Input & Loop Through.
- **Component In/Out**: Component Video (SD & HD autosensing) Input & Loop Through. Supports both YPbPr & RGB signals.
- **Ext. Sync. In/Out**: External Reference Synchronization Interface.
- **SDI In 1 & SDI In 2**: Two Autosensing, Autoswitching, Multi-Format HD/SD-SDI Inputs. Both Inputs support SD or HD SDI Signals, & 3Gbps if installed
- **SDI Out 1 & Out 2**: Two mirrored SD/HD-SDI Outputs (& 3Gbps if in-stalled). Please note that both Outputs pass through the identical active SDI channel, not two distinct channels.
- **Audio In/Out**: Analog Stereo Mini-phono Audio Input & Output.

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Menu Navigation/System Status

Main Menu

Pressing the Menu Button on the Monitor's Keypad will call up the Main Menu, as shown below:

Main Menu	Function	
Function	Function 1	Scopes & VU Meters 1
Scopes & VU-Meters	Function 2	Scopes & VU Meters 2
Video	Function 3	Scopes & VU Meters 3
Audio	Function 4	Marker
Marker	Function 5	Measurment
System	Function Display	On
Alarm		
OSD		
GPI		
Display Alignment		
System Status		
Support		

Navigating the Main Menu

To navigate the main menu simply use the up and down keys to highlight a category and press the enter button to enter the highlighted sub menu. Navigate the sub menu in the same way by using the up and down keys to highlight a particular function and press enter to toggle between that function's settings. To exit the menu or back out of a sub menu simply press the menu button.

System Status Category

The System Status Category does not contain any configurable settings, but does provide important information regarding your monitor's serial number, firmware version, & current configuration.

Main Menu	System Status	
Function	Input	SDI 1
Scopes & VU-Meters	Input Mode	NTSC
Video	Overscan	Off
Audio	Pixel Mapping	Off
Marker	Volume	16
System	Contrast	0
Alarm	Brightness	0.00
OSD	Chroma	0.00
GPI	Hue	0.00
Display Alignment	Version	LM-1760W 0.9.16
System Status	S/N	M1760A0090
Support		

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Function Menu

Function Menu Organization

Main Menu	Function	
Function	Function 1	Scopes & VU Meters 1
Scopes & VU-Meters	Function 2	Scopes & VU Meters 2
Video	Function 3	Scopes & VU Meters 3
Audio	Function 4	Marker
Marker	Function 5	Measurement
System	Function Display	On
Alarm		
OSD		
GPI		
Display Alignment		
System Status		
Support		

***WARNING: Changing a function button assignment does NOT automatically turn an active function off. Make sure to disable unwanted active functions before changing function button assignments.**

***NOTE: Many features (Waveform, Vector Scope, Audio Level Meters, etc.) require a function key in order to operate. Some menus (such as the Scopes & VU Meters menu) only set your display preferences while a corresponding function key must be assigned to turn the feature on and off. If you are having trouble with a monitor feature make sure you have assigned the proper function key and any corresponding menu settings.**

Function Menu

The Function Menu allows you to assign user selectable functions to any of the 5 function buttons (F1, F2, F3, F4, & F5) on the monitor keypad. Many monitor features listed as assignable options in the function menu are also selectable via the embedded menus and are present simply to provide an option for faster, single button press, access to the desired function. Other features listed require a Function Key for activation , but may have associated customizable settings that can be found in other menus. To assign a function to a function key highlight one of the 5 Function lines and press ENTER. A list of assignable functions will appear. Select the desired function with the UP and DOWN buttons and press ENTER to assign that function to the corresponding Function Key. The Function Display option listed under Function 5 gives you the option to have a temporary confirmation window appear on screen after a function key is pressed that will ID the function that was turned On/Off. A review of assignable functions is listed below.

Assignable Functions

- **Scopes & VU Meters 1, 2, 3**

  These functions toggle On/Off a Scopes & VU Meters profile. Three profile slots are available from the Scopes & VU Meters Menu and each profile can bet set to a specific function key allowing you to instantly toggle between various types of Scope and/or Audio Level Meter configurations. Please note that if you have set both Scopes Windows to the Off position in the Scopes & VU Meters menu nothing will appear on screen when you toggle this function. More information on Scope profiles can be found here.

- **Cross Hatch**

  The Cross Hatch function toggles on/off the onscreen display of a graphical cross hatch overlay.

- **Blue Only**

  This function activates the monitor's Blue Only mode.

- **Marker 1, 2, 3**

  These functions activate the onscreen display of the preset Area, Safety, Custom Graticules, or Active Boundary Markers as set in the Marker Profiles. Marker presets can be customized via the Marker menu. By utilizing this function you can toggle on/off your selected markers with a single function key after setting up your marker preferences in the Marker menu (see Marker Menu section of this manual for more details).

- **Overscan**

  The Overscan function is selectable via an assignable function key. The Overscan function can work with 1:1 Pixel mapping mode On or Off. With 1:1 Pixel to Pixel mapping mode turned off the Overscanned image is scaled full screen. With 1:1 Pixel to Pixel mapping mode turned on the image remains unscaled, but the area lying outside of the Active Scan area is blacked out. This blacked out area represents the same area not visible with Pixel to Pixel mode off.

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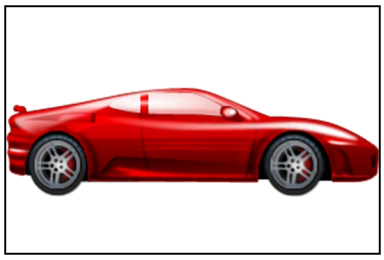
Function Menu (continued)

- **Details on Overscan function**

  With the overscan function Off all active lines of video can be displayed on screen. With overscan On a small percentage of the outermost active video will not be displayed. Additionally, the monitor can scale the over-scanned video full screen or 'blackout' the outlying area while maintaining a pixel to pixel display of the video inside the active scan area. To toggle between these variations of Overscan use the 1:1 Pixel to Pixel mapping function (see Function menu section of this manual). With both Pixel to Pixel mapping and Overscan selected the area outside of the active scan will simply be blacked out, but the active video will not be scaled outside of the 1:1 pixel scan. With Pixel to Pixel mapping Off and overscan On the active scan area will be scaled full screen. To view all active lines in Pixel to Pixel mapping mode make sure to turn Overscan Off.

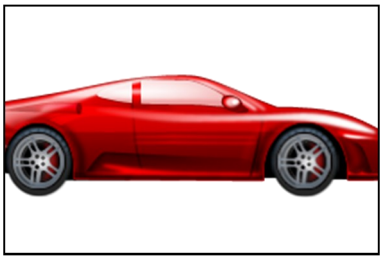
Overscan Examples
(Images represent 720p source on LM-2340W)

Pixel to Pixel Off
Overscan Off



Pixel to Pixel On
Overscan On

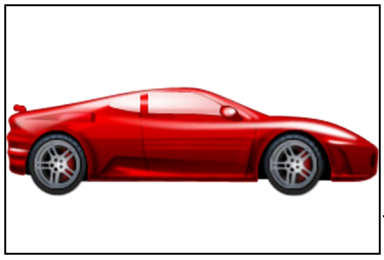
Pixel to Pixel Off
Overscan On



Pixel to Pixel On
Overscan Off

More Overscan Examples
(Images represent 1080i source on LM-2340W)

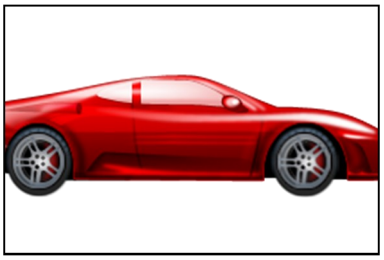
Pixel to Pixel Off
Overscan Off



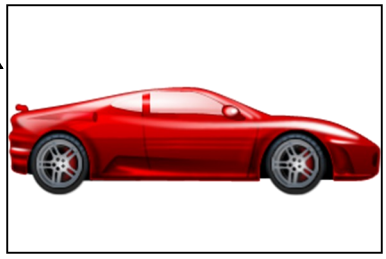
Pixel to Pixel On
Overscan On

Same when viewing 1080i/p Source

Pixel to Pixel Off
Overscan On



Pixel to Pixel On
Overscan Off



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Function Menu (continued)

Assignable Functions (continued)

- **Sub Window**

  The Sub Window function enables a Picture by Picture mode. After assigning the Sub Window function to a function key the first key press of that function key will result in a picture by picture display of your active input. Once sub window mode is active you can press down on the H POS rotary knob to freeze the image on the right while the image on the left will continue to show your live source. Once frozen you can also switch to any other input provided that the resolution of that input is the same as the frozen source. However, you cannot view two live inputs simultaneously. To exit sub window simply press the assigned function key again.

- **Pixel Mapping**

  The Pixel Mapping function toggles between various available pixel mapping options. Options vary depending on the incoming source, but may include the following:

  - 1:1 Pixel Mapping. 1 pixel of incoming source is displayed as 1 pixel onscreen. If the incoming source resolution is less than the total pixel count of the monitor your source will not fill the screen, this is often referred to as a postage stamp representation of the source. If the incoming source resolution is greater than the total pixel count of the monitor then only a portion of the incoming source will be shown onscreen, but the pixel position function may be used to view different sections of the 1:1 pixel representation. The monitor's tally light will flash to remind you that you are in 1:1 pixel mapping mode if any portion of the image is not shown on screen when in 1:1. This pixel mapping mode can be combined with the SD Aspect Function (Anamorphic toggle) to activate a PAL SD FHA viewing mode on the monitor.
  - 2:1 Pixel Mapping (SD sources only): Every individual pixel of the incoming source is represented by four pixels onscreen. This scaling algorithm is simple and allows for a largely artifact free double size version of the 1:1 Pixel Mapping Mode for SD sources. While 2:1 scaling will still not fill the entire screen on a 1920x1080 resolution monitor, it does use a majority of the vertical screen height and provides an excellent quality large scale representation of the SD source.
  - Full Screen Mapping: The full screen mode will scale the incoming source to fill as much of the screen as possible while preserving the incoming source's native aspect ratio. If the incoming source and panel share the same resolution then there will be no difference between 1:1 pixel mapping and full screen pixel mapping.

  Please note that the Overscan function will be represented differently based on the pixel mapping selection that you select. Please see the Overscan Function section of this manual for details.

  - **Pixel Position**

  This feature is a part of the Pixel Mapping function and provides a toggle for positioning a 1:1 Pixel to Pixel mapped representation of an incoming source on different areas of the screen. Once pixel mapping is active the H POS knob will move the source to a different onscreen position when pressed. Please note that if the incoming source is the same resolution as the LCD panel the image will not move. The pixel position feature does not work unless the 1:1 Pixel to Pixel mapping mode function is turned On. On 7", 9", and 17" monitors this feature can be used with the Pixel to Pixel Mode to view any section of a 1080 source in a native 1:1, unscaled format. Similarly, on all native 1920x1080 or 1920x1200 resolution monitors this mode will allow you to view any portion of an incoming 2K source in an unscaled 1:1 onscreen representation.

- **H/V Delay Mode**

  This mode activates the Horizontal and Vertical Delay Function to highlight the horizontal and vertical blanking portions of the incoming signal.

- **Mono Mode**

  This mode activates the monochrome function. Press once to turn on and again to turn off.

- **Zoom**

  This function zooms in on the incoming source until the entire screen is filled. This is strictly a zooming function and does not alter the native aspect ratio of the source to fill the screen. When viewing a 4:3 source in Zoom mode on a 16:9 display the aspect ratio of the visible video will remain 4:3 though the entire 16:9 screen will be filled. Essentially the Zoom mode results in viewing a 16:9 section of the 4:3 source and is most useful when viewing a letterboxed SD source on a widescreen display so that the letterboxing is not shown and only the video within the letterboxing is present.

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Function Menu (continued)

Assignable Functions (continued)

- **SD Aspect Ratio**

  Toggles between 4:3 and Anamorphic display of Standard Definition source. This function should be set to match the SD source being viewed. The default setting is 4:3. If used in conjunction with 1:1 pixel mapping this function can also activate a PAL SD FHA viewing mode.

- **Full Screen**

  This function simply stretches any incoming source to fill the entire screen. Unlike the Zoom feature this full screen stretch does not preserve aspect ratio, but it does keep all of the active video signal present. Though the full screen mode has many potential uses it was designed primarily for use with rasterizers that generate a 16:10 or 16:9 aspect 1024x768 output. Enabling Full Screen mode allows the monitor to stretch the image as intended by the rasterizer.

- **Pixel Zoom**

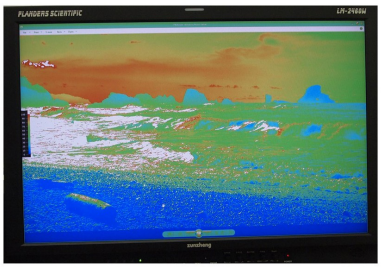
  Once assigned to a function button this feature allows you to toggle the Pixel Zoom feature on/off. When turned on this feature will generate a positionable and resizable rectangle on screen. The rectangle may be moved left or right using the H POS (PHASE) rotary knob and up or down using the V POS (CHROMA) rotary knob. The REF POS (BRIGHT) rotary knob may be used to change the size of the onscreen rectangle. Using these three rotary knobs you can select any area on screen and then press down on the F Stop (4th from left) rotary knob to zoom to the selected area. This pixel zoom feature is designed to work with any HD signal formats. A Flashing Tally light will be activated on your monitor whenever you are in a zoomed mode as a reminder/warning that the entire incoming signal is not being shown on the monitor. To exit the zoomed mode simply press down on the F Stop (4th from left) rotary knob once more. To exit the Pixel Zoom feature entirely simply press the function button assigned to this feature once more. The Pixel Zoom function allows for an essentially artifact free high quality zoom on any portion of an HD signal.

- **LUM Coloring**

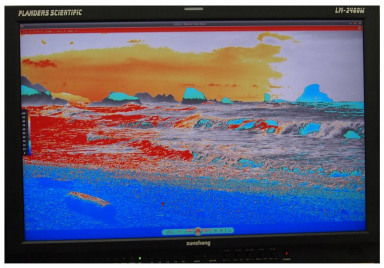
  This function generates an artificial luminance map of the incoming source that can be particularly useful in identifying overexposed areas in any given shot. An onscreen scale helps indicate what artificial color corresponds to what luminance level. The scale will follow the selected Waveform Scale set in the Scopes & VU Meters Profile 1: you can choose from IRE, Digital Levels, or Voltage. In its default configuration the LUM Coloring feature will highlight all levels above 100IRE as white and all levels below 0 IRE as black. In default mode levels between 0 and 100 IRE will be color coded. However, you can change the range of these color coded regions to any preferred setting by using the monitor's rotary knobs. The H POS rotary knob will adjust the lower limit of the lower color coded region. The V POS rotary knob will adjust the upper limit of the lower color coded region. The Ref Pos rotary knob will adjust the lower limit of the upper color coded region. The F Stop Rotary knob will adjust the upper limit of the upper color coded region. These color coded ranges are retained in memory so you can exit and reenter LUM Coloring Mode without having to reset your desired threshold levels.

Lum Coloring with Custom Range

Lum Coloring with All Legal Levels Shown in Greyscale
Underexposed Areas in Blue
Overexposed Areas in Red



LUM Coloring in Default Mode
Overexposed Areas in White
Underexposed Areas in Black



Lum Coloring with Custom Range

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Function Menu (continued)

Assignable Functions (continued)

- **Measurement**

  This function allows you to get precise real time YRGB measurements of any point or area within your incoming signal. To toggle this feature on/off simply press the function key you have assigned to the Measurement function to display a movable crosshair onscreen. With the Measurement function on you can use the H POS and V POS rotary knobs to position your crosshair over the point within your source that you would like to measure. To reset the vertical or horizontal position of your crosshair back to center simply press down on the corresponding rotary knob. You may also use the REF POS rotary knob to select the size of the sampling area for the measurement data (from a single pixel to a much larger area where the values will be an average of all pixels within your defined sample area). As you move the crosshair your Measurement data will update in real time. The Measurement function is available in a 10 bit mode or 8 bit mode and will provide you with the following data in real time:

  - Line and Sample (Identifies position of your crosshair)
  - Y (Luminance as an absolute value between 0-255 for 8 bit and 0-1023 for 10 bit)
  - Y% (Luminance level expressed as percentage)
  - R% (Red level expressed as percentage)
  - G% (Green level expressed as percentage)
  - B% (Blue level expressed as percentage)
  - R (Red level as an absolute value between 0-255 for 8 bit and 0-1023 for 10 bit)
  - G (Green level as an absolute value between 0-255 for 8 bit and 0-1023 for 10 bit)
  - B (Blue level as an absolute value between 0-255 for 8 bit and 0-1023 for 10 bit)

  You can also press the REF POS rotary knob to set a reference position onscreen. Once your reference position is set it will be indicated on screen by a separate crosshair and you will be able to move the active crosshair to obtain a real time readout of your current and reference positions as well as a separate readout of the precise difference between current and reference locations. Please note that your reference position is both a spatial and temporal reference meaning that the values indicated on screen for the reference are for that point on screen at the moment you set the reference.

  Pressing the F Stop rotary knob button allows you to set your current crosshair position as an F-Stop Reference and view differences between this current position and your reference position as an F-Stop value. The F-Stop reference feature is independent of the REF POS feature. The F-Stop reference value will always be based on the levels of your current active crosshair position at the precise moment when the F-Stop knob is pressed.

  The crosshair color will follow the color selected for markers from the Marker Menu. To change the color of the Measurement function's crosshair change the Marker color.

Measure	Line	Sample	Y1024	R1024	G1024	B1024	Y%	R%	G%	B%	F/stop
Current	293	944	249	246	251	217	21.1	20.8	21.3	17.5	-0.0
Ref_Pos	316	994	240	240	241	219	20.1	20.1	20.2	17.7	-0.1
Diff	-24	-51	9	6	10	-2	1.0	0.7	1.1	-0.2	0.1

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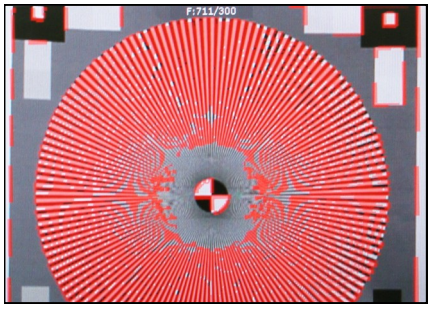
Function Menu (continued)

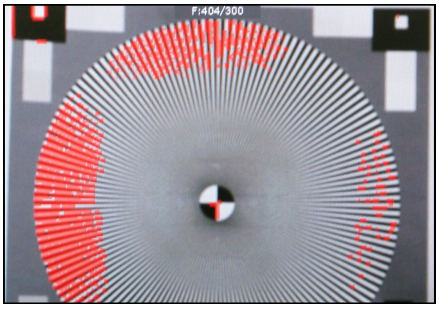
Assignable Functions (continued)

- **Focus Assist**

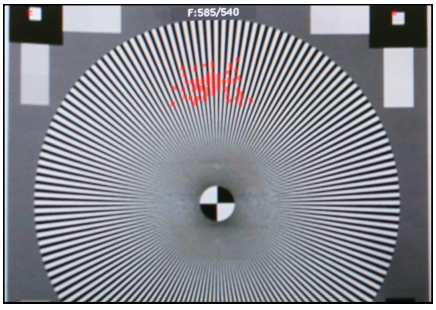
  To activate this function simply set it to a function key. Pressing the assigned function key will turn the focus assist feature on and pressing it again will turn it off. The focus assist feature is comprised of two main parts: a numerical focus meter and a graphical focus highlight. The numerical focus meter is shown on screen as your current focus value over your reference focus value (i.e. 560/300). When the focus assist feature is activated the rotary knob labeled Ref POS allows you to adjust the reference focus value. The reference focus value represents the in-focus threshold for the focus highlight portion of the focus assist feature. Adjusting the focus reference value higher means that the threshold at which the focus highlight begins to trace in-focus items with a red boundary will be higher. In other words a greater degree of focus will need to be achieved before the focus highlight feature is visible on screen as a red trace around in-focus objects.



In Focus Shot with Default Focus Reference Value



Less Focused Shot with Default Focus Reference Value



Example of Shot with Focus Reference Value Turned Up

- **Level B Variable Wipe**

  When monitoring a Level B 3Gbps SDI signal (monitor must have 3Gbps SDI Input) comprised of two multiplexed 1.5Gbps HD-SDI signals the monitor will allow you to view these signals in a vertical or horizontal split screen mode. By activating the Level B Variable Split function while in split screen mode the positioning of the split can be adjusted using the H POS rotary knob. To quickly reset the split screen positioning to the default center position simply press down on the H POS rotary knob while the Level B Variable Wipe function is active. Once your desired split screen wipe position is set you can the Level B Variable Wipe function off to remove the guide line between the two signals.

- **Still Frame**

  This function allows you to freeze a video source at anytime. To unfreeze simply press the function key assigned to still frame a second time.

- **DSLR Zoom**

  This function is designed to be used with many popular DSLR cameras that have preview/record monitoring output in 1080 & 480 resolutions. When DSLR Zoom is active the 16:9 area that will be recorded is scaled to fill the screen. On DSLR cameras that switch from 1080 to 480 while recording the DSLR Zoom can be left on and the same correct aspect zoom will be maintained regardless of whether the DSLR is in preview or recording mode. While DSLR Zoom is active the markers may also be turned on and will be correct relative to the 16:9 video that will be captured to the camera's memory card. Please note it may be necessary to toggle the viewing mode preference (Info button on many DSLRs) to fill the screen correctly.

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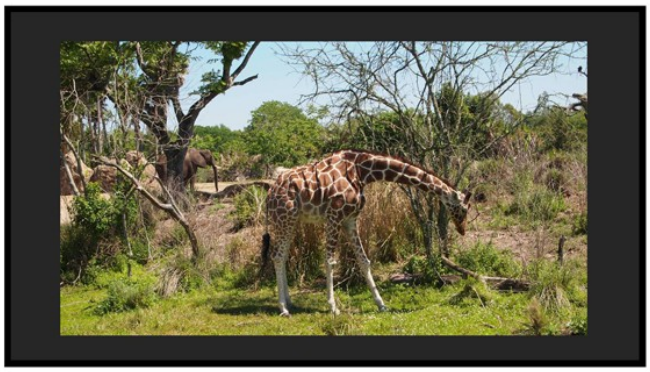
Function Menu (continued)

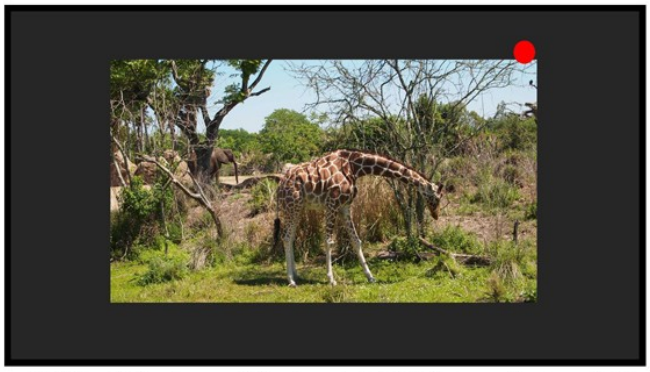
Assignable Functions (continued)

- **DSLR Zoom (continued)**

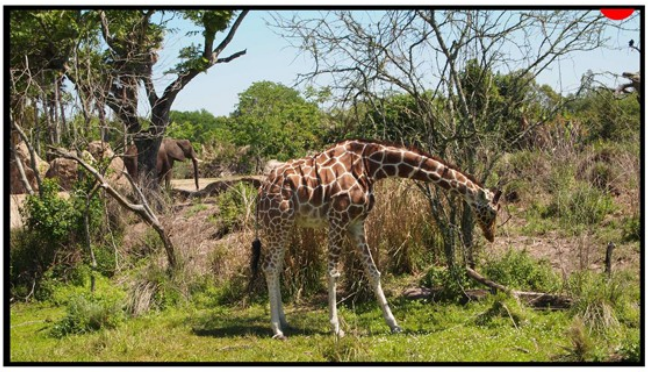


DSLR in 1080i Preview with **DSLR Zoom** feature Off

DSLR in 1080i Preview with **DSLR Zoom** feature On



DSLR in 480p Record Mode with **DSLR Zoom** feature Off



DSLR in 480p Record Mode with **DSLR Zoom** feature On

- **Safety Broadcast**

  Safety Broadcast is a special monitoring mode designed for Control Room and QC station environments. With Safety Broadcast mode activated you can have simultaneous display of two audio level meters, Enhanced Source ID display (large overlay, remotely or manually set), Enhanced Alarm Window Display (large window, red background), and enhanced timecode display (large timecode overlay window). Please note that as with the standard Alarm Monitoring feature the monitor may respond slowly to user toggles/ inputs if a constant alarm condition is occurring. Toggles for UMD Display, Color, and Position are found on the Alarm menu. Vertical or Horizontal Safety Broadcast Audio Meter selection is also found on the Alarm Menu.

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Function Menu (continued)

Assignable Functions (continued)

- **AFD (Active Format Description)**

  Activating this function will enable an Active Format Description reader on the monitor that will provide both a text readout of AFD data and display corresponding markers onscreen indicating the portions of the image described by the AFD code. If no AFD data is present while this feature is active the monitor will show AFD: NONE in its AFD readout window.

- **Anamorphic De-Squeeze**

  This feature gives you the ability to de-squeeze HD signals coming from cameras utilizing anamorphic lenses that may not have a built in de-squeeze feature of their own. This can be particularly useful in applications outside of post production, especially onset monitoring, where de-squeezing such signals in real-time may otherwise not be possible. The de-squeeze modes available are 1.3, 2.0, and 2.0mag. This feature is in addition to, and not a substitute for, the SD Aspect Ratio function. To use this feature set Anamorphic De-Squeeze to a function button, which will allow you to toggle the de-squeeze on and off. To set the de-squeeze ratio/magnification go to the Video Menu and select your desired Anamorphic De-Squeeze mode.

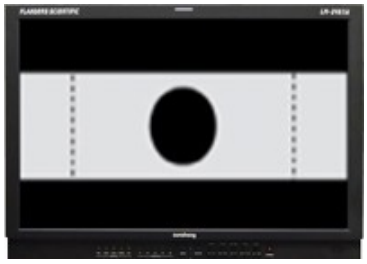
  Anamorphic De-Squeeze Modes

1.3x Anamorphic Original

1.3x Anamorphic De-Squeeze

2.0x Anamorphic Original

2.0x Anamorphic De-Squeeze



2.0x Anamorphic Original

2.0x mag Anamorphic De-Squeeze

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Function Menu (continued)

Assignable Functions (continued)

- **Invert Screen (LM-0950W Only)**
  Allows the image to be flipped onscreen in real-time. This function only works on the LM-0950W.
- **CX Scale**
  This scaling mode was designed specifically to allow the scaled down and top centered 'gate check' output from Codex™ ARRIRAW Recorders to be scaled full screen. Once assigned to a function key you can quickly enter or exit this custom scaling mode with a single button press. Please note that some functions, such as markers, will not work while this mode is active. However, other useful functions such as Waveform and Vector Scope will continue to operate normally.

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Marker Menu

Marker Menu Organization

Main Menu	Marker	
Function	Marker Select	Profile 1
Scopes & VU-Meters	Area Marker	4:3
Video	Safety Marker	90%
Audio	Marker BG.	Normal
Marker	Center Marker	On
System	Marker Color	White
Alarm	Safety in Area	On
OSD	Active Boundary	Off
GPI	Graticules	Off
Display Alignment		
System Status		

***NOTE: The Marker Menu only sets your marker preferences. To toggle the on-screen display of your configured marker assign the Marker function to one of the function keys. See the Function Menu section of this manual for more details.**

Marker Menu Functions

- **Marker Select**
  Toggles between three Marker Profiles. Each profile stores all marker preferences and can be recalled from the function menu by assigning a function button to a specific marker profile.
- **Area Marker**
  Use the Area Marker function to select what type of marker is displayed when the marker function is active. The marker selections available from this option include most commonly used markers and more complex user designed custom markers. Safety Areas are selected from the next menu item labeled 'Safety Marker'. Area Markers and Safety Markers may be displayed simultaneously provided that the Marker Background function (described below) is set to Normal.
- **Safety Marker**
  Use the Safety Marker function to toggle the size, in percentage, of the safety marker displayed. This option can be used by itself or in conjunction with the Area Marker function provided that the Marker Background function (described below) is set to Normal. The Safety Marker may be displayed relative to the incoming source or the Area Marker by toggling the Safety in Area option on the Marker Menu.
- **Marker BG.**
  The Marker Background function can be used to toggle how the area that lies outside of the Area Marker or Safety Marker boundaries is represented. You can select from normal, which does not alter the outlying area, Transparent, which shades the outlying area with a translucent cast, or Solid, which mattes out the outlying area with your selected marker color.
- **Center Marker**
  Toggles whether the center marker (crosshair) is displayed when the marker is activated.
- **Marker Color**
  This function allows you to select the color of the marker being used. This function can be especially useful when one color dominates the screen and an easily visible high contrast marker is desired.
- **Active Boundary**
  When turned On the Active Boundary marker will highlight the edges of any active video area not directly bordering the monitor's bezel. This function is useful for detecting missing lines in the active video area.
- **Safety in Area**
  Toggles whether Safety Marker is shown relative to incoming source or relative to Area Marker (i.e. 4:3)
- **Graticules**
  Toggles Custom Marker Feature On/Off. Use rotary knobs to adjust line positioning.

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Video Menu

Video Menu Organization

Main Menu	Video	
Function	Gamma Select	Film
Scopes & VU-Meters	Film Gamma	Gamma 2.2
Video	Color Temperature	6500K
Audio	Sharpness Level	Default
Marker	SD Enhancement	Off
System	Anamorphic De-Squeeze	4:3
Alarm	Signal Mode	Auto
OSD	Processing	Normal Mode
GPI	Composite Setup	7.5 IRE
Display Alignment	Component Setup	YPbPr SMPTE/N10
System Status	SDI Format	Auto
Support		

Video Menu Functions

- **Gamma Select**

  This function allows you to select between various gamma modes. By selecting 'Film' for this option you can specify the gamma value of your choosing in the next menu item: Film Gamma. By selecting 'Uncorrected' the monitor will use the native gamma of the raw LCD panel and FSI's calibrated settings will be disabled until set back to 'Film.' Film gamma is the default and recommended setting. Uncorrected should only be used if you wish to manage the display's calibration solely with an external color management system.

- **Film Gamma**

  The Film Gamma function allows you to specify the desired gamma response of the monitor in 0.2 step increments ranging from a gamma response of 1.8 to 2.8 as well as 2.35 and 1.0. The Gamma Select function must be set to 'Film' for this function to work. The default gamma setting is 2.2, but any selection may be selected for instant adjustment of the monitor's gamma response. The monitor will override this manual selection in DCI-P3 mode and attempting to change the value while in DCI-P3 mode will result in the monitor exiting this color space mode.

- **Color Temperature**

  Use this function to set the desired color temperature. You can instantly toggle between 3200K, 5000K, 5600K, 6500K, and 9300K. 6500K is the default setting. Please note that in DCI-P3 mode the monitor will override this manual setting. Attempting to select a Color Temperature setting manually with DCI-P3 mode active will result in the monitor exiting DCI-P3 color space mode.

- **Sharpness Level**

  This function is a peaking level adjustment and produces an effect very similar to a physical aperture adjustment. By adjusting sharpness lower the image will look softer and by adjusting sharpness higher the image will look sharper. Perceived sharpness may also be affected by video processing and pixel mapping settings so optimal results may come from using a combination of these various settings.

- **SD Enhancement**

  This toggle applies maximum sharpening and video quality enhancement to SD video sources.

- **Anamorphic De-Squeeze**

  Toggles between 1.3, 2.0, and 2.0mag HD Anamorphic De-Squeeze ratios. This is used in conjunction with the Anamorphic De-Squeeze function described in the Function Menu portion of this manual.

- **Signal Mode**

  Selecting 'Film' for this option allows the monitor to compensate for material with 2:3 pulldown to provide a smoother image. Selecting 'TV' for this option processes the incoming video signal with no 2:3 pulldown compensation. Selecting 'Auto' will automatically trigger 'Film' mode anytime 2:3 pulldown is detected.

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Video Menu (continued)

Video Menu Organization

Main Menu	Video	
Function	Gamma Select	Film
Scopes & VU-Meters	Film Gamma	Gamma 2.2
Video	Color Temperature	6500K
Audio	Sharpness Level	Default
Marker	SD Enhancement	Off
System	Anamorphic De-Squeeze	4:3
Alarm	Signal Mode	Auto
OSD	Processing	Normal Mode
GPI	Composite Setup	7.5 IRE
Display Alignment	Component Setup	YPbPr SMPTE/N10
System Status	SDI Format	Auto
Support		

Video Menu Functions

- **Processing**
  The Processing function has three options: Normal, Fast, & Noise Reduction. In Normal mode the monitor will display interlaced video as interlaced and have a very low latency processing delay. In Fast mode the video processing delay is further improved to provide the lowest possible processing latency, but ancillary functions and menu displays are updated more slowly. In Noise Reduction mode video processing delay is increased to allow for additional noise reduction processing and the monitor will deinterlace the signal and display it as progressive
- **Composite Setup**
  Allows you to toggle between 0 or 7.5 IRE setup selection for composite sources.
- **Component Setup**
  Using the Component Setup feature allows you to specify what type of component signal you are sending to the monitor. Select from YPbPr SMPTE/N10, YPbPr Betacam, YPbPr MII. Your selection will automatically adjust the monitor to compensate appropriately for differences in saturation and setup defaults within these standards. Please note that you can override the setup selection set by this Component Setup feature by toggling the Composite Setup function after selecting the desired Component Setup default.
- **SDI Format (ONLY APPLIES TO 3Gbps SDI ENABLED MONITORS)**
  FSI Monitors are capable of detecting the payload ID contained in an SDI signal and adjusting the format accordingly. However, some sources or upstream equipment may not generate or pass this payload ID. For sources lacking a proper Payload ID you may override the SDI Format auto detect function and manually choose between the following formats: 4:2:2 YCbCr, 4:4:4 YCbCr, or 4:4:4 RGB. This toggle only applies to monitors with the 3Gbps SDI option installed. Monitors without the 3Gbps SDI option will only function in 4:2:2 YCbCr over SDI.

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Scopes & VU Meters Menu

Scopes & VU Meters Menu Organization

Main Menu	Scopes & VU Meters	
Function	Scopes & VU Meters	Profile 1
Scopes & VU-Meters	Window 1	Luminance
Video	Window 2	Vector
Audio	Waveform Position	Bottom Right
Marker	Scopes Stack	Horizontal
System	Waveform Scale	IRE Level
Alarm	Audio Display Mode	Pairs
OSD	Alignment Level	-18 dBFS
GPI	Permitted Max Level	-9 dBFS
Display Alignment	Audio Display Channels	1-16
System Status		
Support		

***NOTE: The Scope & VU Meters Menu only sets your Waveform, Vector, & Audio Level Meter display preferences. To toggle the onscreen display of your configured Scopes & VU Meters profiles assign the Scopes & VU Meters profiles to specific keys. See the Function Menu section of this manual for more details.**

Scopes & VU Meters Menu Functions

- **Scopes & VU Meters Profile 1, 2, 3**

  The Scopes & VU Meters menu allows you to setup three Scopes & VU Meters Profiles, each capable of storing all of the configurable settings found on the Scopes & VU Meters Menu. To configure a Profile simply select the Profile number, 1 through 3, from the top of the Scopes & VU Meters menu page. Once you have selected the desired profile number any settings you change will become associated with that profile number. Changing from one profile to another from the Scopes and VU Meters menu will automatically recall your last settings for that profile. Once you have configured your Scopes & VU Meters profiles you can assign a specific function key to a particular profile, which allows you to instantly switch between different types of Scope and/or VU Meters modes without having to go back into the onscreen menu.

- **Window 1 & Window 2**

  Two scope windows can be displayed simultaneously so you can view any two of the following modes at the same time: Luminance (Standard Waveform), Vector Scope, RGB Parade, GBR Parade, RGB Overlay, YCbCr, YCbCr Overlay, Column (YRGB Peak), Histogram, Color Histogram, RGB Histogram, Audio Phase, and Vertical Audio Level Meter (PPM). Please note that displaying two Scope Windows at the same time will cause the Scopes to update more slowly than displaying just one Scope Window. To display just one scope Window select OFF in the secondary window selection. An additional audio level meter mode called horizontal audio level meter is also selectable. This mode displays VU meters horizontally across the top of the screen, but cannot be used in conjunction with any other Scope modes. ***Helpful Hint: Waveform Intensity can be increased by turning the H POS rotary knob while waveform is on and Vector Scope Gain can be adjusted with the V POS rotary knob. Default Scope Intensity as of firmware version 9.42 is 75% of the maximum level.***

- **Waveform Position**

  Use the Waveform Position toggle to select in what area of the screen you would like your Scopes to be displayed.

- **Scopes Stack**

  Use this option to select whether the Scope Windows are stacked vertically or positioned horizontally next to each other when utilizing two Scope Windows.

- **Waveform Scale**

  This option allows you to choose what type of scale is used on the Waveform Monitor. You may select from V Level (for a voltage based scale), IRE Level (for an IRE based scale 0-100), or Digital Level (for a 8 bit digital level based scaled, 0-255).

- **Alignment Level**

  Allows audio level meter alignment level to be set to –18dBFS or –20dBFS.

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Scopes & VU Meters Menu (continued)

Scopes & VU Meters Menu Organization

Main Menu	Scopes & VU Meters	
Function	Scopes & VU Meters	Profile 1
Scopes & VU-Meters	Window 1	Luminance
Video	Window 2	Vector
Audio	Waveform Position	Bottom Right
Marker	Scopes Stack	Horizontal
System	Waveform Scale	IRE Level
Alarm	Audio Display Mode	Pairs
OSD	Alignment Level	-18 dBFS
GPI	Permitted Max Level	-9 dBFS
Display Alignment	Audio Display Channels	1-16
System Status		
Support		

***NOTE: The Scope & VU Meters Menu only sets your Waveform, Vector, & Audio Level Meter display preferences. To toggle the onscreen display of your configured Scopes & VU Meters profiles assign the Scopes & VU Meters profiles to specific keys. See the Function Menu section of this manual for more details.**

- **Audio Display Mode**
  This option can be set to either Groups or Pairs. When organized in pairs the odd channels will be displayed on the left side of the screen and even channels of the right side of the screen. When organized in groups the channels will be arranged with all channels of an Audio Group displayed on the same side of the screen together.
- **Audio Display Channels**
  Allows you to select the Audio Level Meters Channels that will be shown on the Vertical or Horizontal Audio Level Meters. Select from Channels 1-2, 1-8, 9-16, or 1-16.
- **Permitted Max Level**
  Allows you to specify the Max Audio Level for your onscreen Audio Level Meters:
  Select from: -10 dBFS, -9 dBFS, or -8 dBFS

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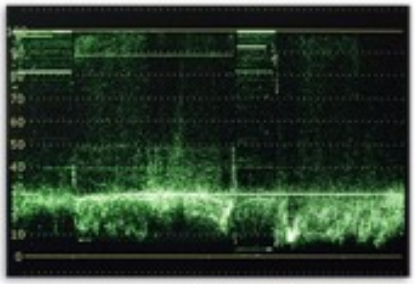
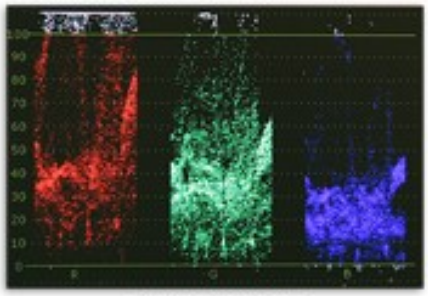
Scopes & VU Meters Menu (continued)

Available Scope Modes

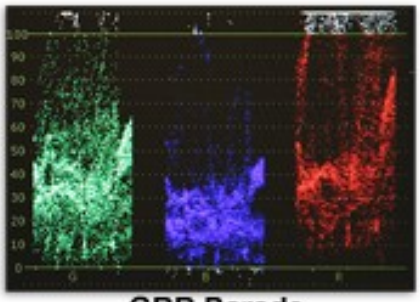


Luminance

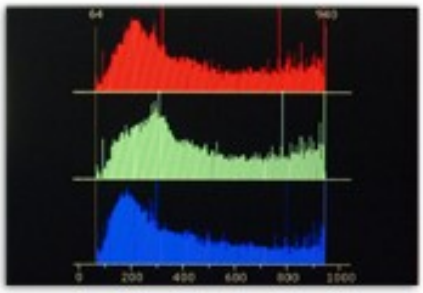
Vector Scope



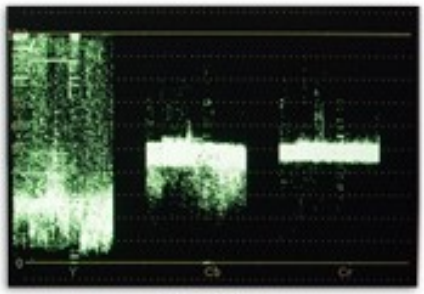
RGB Parade



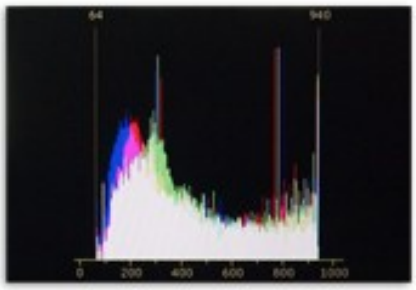
GBR Parade



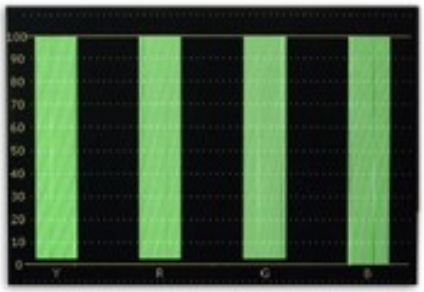
Color Histogram



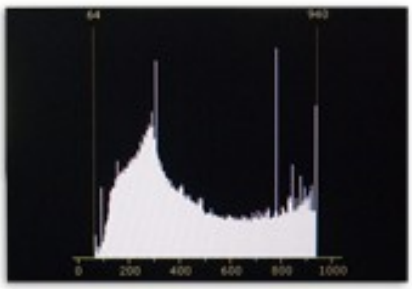
YCbCr



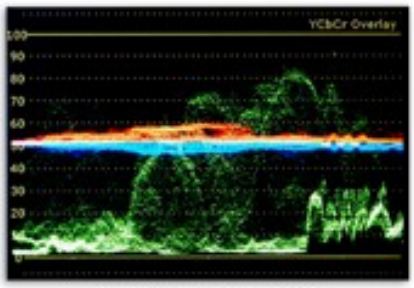
RGB Histogram



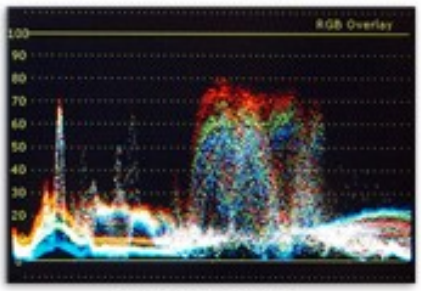
Column (YRGB Peak)



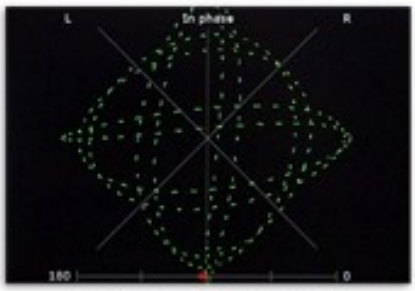
Histogram



YCbCr Overlay

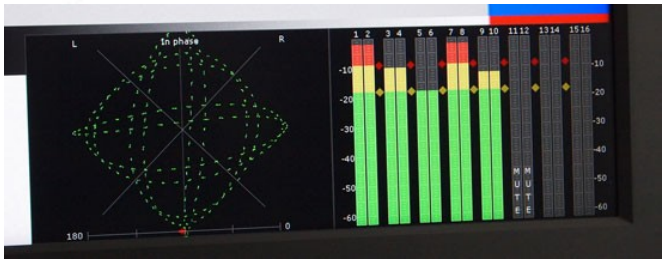


RGB Overlay



Audio Phase Meter

Audio Level Meters



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System Menu

System Menu Organization

Main Menu	System	
Function	DVI Selection	DVI-D
Scopes & VU-Meters	DVI Pixel Format	Full RGB
Video	Component Input	COMPONENT
Audio	Component Pixel Format	YPbPr
Marker	3G Level B	Stream 1
System	SDI Hue Adjustment	Off
Alarm	Back Light	35
OSD	Back Light Interval	On
GPI	LED Light	On
Display Alignment	Language	English
System Status	Part Display	Off
Support	Load Profile	Default
	Save Profile	Profile 1

System Menu Functions

- **DVI Selection / DVI Pixel Format**

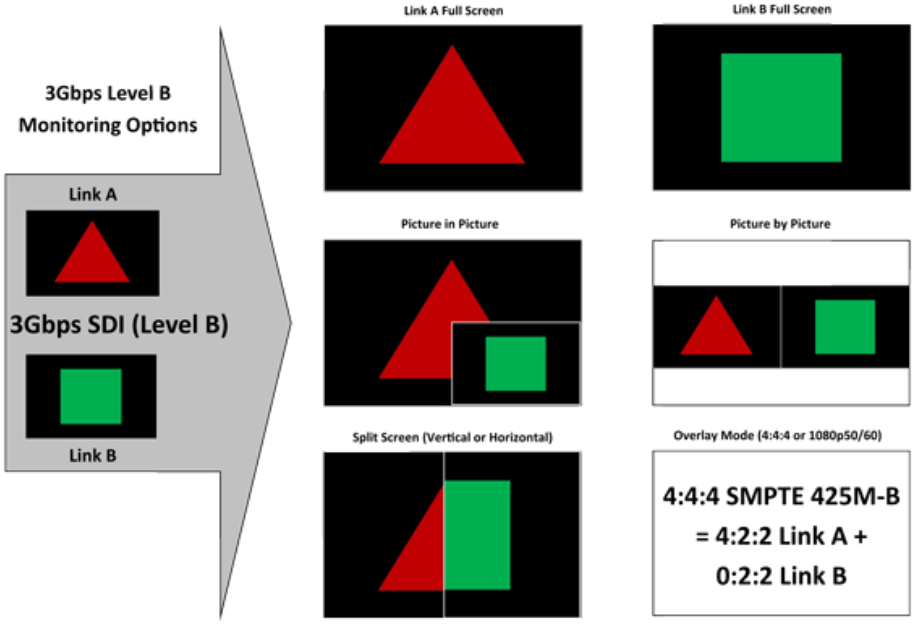
  FSI Monitors are equipped with a DVI-I Input, which supports both DVI Digital and DVI Analog sources. To select between DVI-D (Digital) and DVI-A (Analog) simply toggle this control accordingly. Use DVI Pixel format to select between Full RGB (0-255), Limited RGB (16-235), or YCbCr modes.

- **Component Input / Component Pixel Format**

  Use Component Input to toggle between Component & Composite Video on the LM-0750W's or LM-0950W's shared analog inputs. Use Component Pixel Format to toggle the Analog Component Video Inputs between YPbPr or RGB mode on all models.

- **3G Level B**

  When monitoring a 3Gbps SDI Level B signal (monitor must be equipped with 3Gbps SDI Inputs) comprised of two distinct 1.5Gbps HD-SDI signals that have been muxed together you can use this 3G Level B selection to select different monitoring options including: Stream 1, Stream 2, PAP, PIP, POP, Vertical Split, Horizontal Split, Overlay Mode. Please note that Level B 3Gbps SDI requires that both 1.5Gbps signals share the same frame rate and resolution and that Link A and Link B are genlocked. For signals using SMPTE 425M-B image format mapping to transport SMPTE 372M formatted Dual Link information (4:4:4 YCbCr or RGB / 1080p50/60) the Overlay Mode should be used to view the combined LinkA and LinkB data as a single video signal.



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System Menu (continued)

System Menu Organization

Main Menu	System	
Function	DVI Selection	DVI-D
Scopes & VU-Meters	DVI Pixel Format	Full RGB
Video	Component Input	COMPONENT
Audio	Component Pixel Format	YPbPr
Marker	3G Level B	Stream 1
System	SDI Hue Adjustment	Off
Alarm	Back Light	35
OSD	Back Light Interval	On
GPI	LED Light	On
Display Alignment	Language	English
System Status	Part Display	Off
Support	Load Profile	Default
	Save Profile	Profile 1

System Menu Functions (continued)

- **SDI Hue Adjustment**
  This option allows you to activate the HUE adjustment knob while monitoring in SDI. In analog monitoring modes (i.e. Composite Video) the HUE adjustment will always be active. Technically speaking Serial Digital being both a Digital and YCbCr or RGB video format should not require a HUE adjustment, but should you wish to have such an adjustment in SDI you should turn this option ON.
- **Back Light**
  This option allows you to set the Backlight setting (15~100) to adjust peak white luminance level.
- **Back Light Interval**
  The backlight interval is a power saving feature; It allows you to specify the amount of time without an active signal being shown on the monitor that should be allowed to expire before the monitor's backlight is turned off to reduce the power consumption of the unit. When placed in the On position the monitor will not enter the power saving mode and will keep the backlight on so long as the monitor is left on.
- **LED Light**
  Allows you to turn off the LED lights on the Monitor's Keypad.
- **Part Display**
  Toggles whether just the center part (On) or entire source (Off) is shown in Sub Window Mode.
- **Load Profile**
  Recall Saved Profile Settings. Highlight desired profile & press ENTER to activate the saved profile selection.
- **Save Profile**
  Saves all current monitor settings under a recallable profile by highlighting Profile number & pressing ENTER.

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Alarm Menu

Alarm Menu Organization

Main Menu	Alarm	
Function	Alarm	Off
Scopes & VU-Meters	Visual Alarm	Off
Video	Remote Alarm Monitoring	Off
Audio	IRE Trigger Level	940
Marker	Audio Trigger Time	5s
System	UMD Display	Source ID
Alarm	UMD Color	White
OSD	UMD Position	Bottom
GPI	Audio Meter	Vertical
Display Alignment	Select Alarm Area	
System Status	RS422 Address	1
Support	Baud Rate	9600.00
	Parity	None

***NOTE: Onscreen Alarms are processing power intensive. When active the monitor may respond more slowly to user input via buttons/ remote control if a large number of successive alarm events are occurring. Switching to an unused input with no video will allow the monitor to respond quickly to user input should the operator simply want to turn Alarm monitoring off in scenarios where monitor menu response is slowed by such successive alarm events.**

The monitor's built in Alarm system allows for simplified QC monitoring of signals with minimal overlap of active video. The alarm monitoring system allows you to specify alarm parameters that will trigger onscreen and/or remotely monitored warnings when a specified condition is met and provide an unobtrusive QC viewing mode compared to having onscreen scopes active at all times. Please note the alarm monitoring capabilities are limited by the processing power of the monitor. *The signal will be sampled at a variable rate depending on other processing loads placed on the monitor. With minimal additional processing demands the fastest sample rate is approximately every 2 to 3 frames. It is therefore possible that an alarm event occurring for only 1 or 2 frames may be missed by the alarm monitoring system. The alarm monitoring system is a useful tool for quick analysis of content to make sure no serious errors exist, but it should not be used as substitute for standalone legalizers and signal level monitoring systems in ultra-critical level monitoring applications.*

Alarm Menu Functions

- **Alarm**
  Selects the type of alarm events that will be monitored. This selection ONLY affects onscreen (visual) alarms and does not change what alarm events can be monitored through the remote control alarm monitoring software.
  - Safety Alarm: Will trigger an alarm if a loss of signal is detected, a full black field is detected, a full blue field is detected, and/or embedded audio goes mute for the amount of time specified in the Audio Trigger Time setting. The audio mute alarm will only trigger if audio is being embedded into the signal and is mute for the specified amount of time, there will be no audio mute warning if audio is not being embedded into the SDI signal.
  - Safety Video Alarm: Same as Safety Alarm minus audio alarms.
  - IRE Alarm: Will trigger an alarm if the IRE level specified in the IRE Trigger Level setting is exceeded.
  - RGB Alarm: Will trigger an alarm if any RGB Levels exceed 100IRE.
  - IRE & RGB Alarm: Combines IRE and RGB Alarms and will trigger an alarm if either or both exceed their set parameters.
  - All Alarms: Will trigger an alarm if any alarm condition is met (Loss of Signal, Black Field, Blue Field, Audio Mute, IRE threshold exceeded, RGB levels over 100IRE).
- **Visual Alarm**
  When set to ON a small box will appear on the monitor's screen whenever the alarm condition set in the Alarm menu selection explained above is triggered.

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Alarm Menu (continued)

Alarm Menu Organization

Main Menu	Alarm	
Function	Alarm	Off
Scopes & VU-Meters	Visual Alarm	Off
Video	Remote Alarm Monitoring	Off
Audio	IRE Trigger Level	940
Marker	Audio Trigger Time	5s
System	UMD Display	Source ID
Alarm	UMD Color	White
OSD	UMD Position	Bottom
GPI	Audio Meter	Vertical
Display Alignment	Select Alarm Area	
System Status	RS422 Address	1
Support	Baud Rate	9600.00
	Parity	None

Alarm Menu Functions (continued)

- **Remote Alarm Monitoring**
  When set to ON allows for remote alarm monitoring via FSI's remote alarm monitoring software.
- **IRE Trigger Level**
  Sets the luminance threshold at which IRE alarms will be triggered, adjustable from 90 to 109 IRE
- **Audio Trigger Time**
  Sets the amount of time with mute audio that should elapse before the mute audio alarm is triggered.
- **Select Alarm Area**
  The screen area monitored for Alarm Triggers can be adjusted using the Select Alarm Area feature. To set the alarm area simply highlight Select Alarm Area and press enter. Once active you can use the monitor's rotary knobs to adjust 4 lines on screen, similar to the custom graticules feature on the marker menu, to define the onscreen area that will be monitored. Once your desired area has been set simply use the Menu button to back out of the Select Alarm Area function. The default alarm monitoring area is the whole screen, but this function allows users to specify smaller regions if only a portion of the screen area needs to be monitored.
- **UMD Display**
  Only applies to Safety Broadcast Feature. Allows you to select whether the Source ID overlay displayed is based on the manually set source ID on the monitor's OSD menu or based on remotely set UMD information over RS232 or RS422. You may also turn the selection to off to remove the Source ID overlay.
- **UMD Color**
  Only applies to Safety Broadcast Feature. Toggles the Source ID text color between White and Black.
- **UMD Position**
  Only applies to Safety Broadcast Feature. Select top or bottom of screen. Please note that when Timecode Overlay is active the UMD will automatically be positioned at the bottom of the screen.
- **Audio Meter**
  Only applies to Safety Broadcast Feature. Determines position of 2 channel audio level meters. Select from Horizontal or Vertical.
- **RS422 Address**
  Sets the monitors RS422 address for remote control and alarm monitoring. Set between 0~126.

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Alarm Menu (continued)

Alarm Menu Organization

Main Menu	Alarm	
Function	Alarm	Off
Scopes & VU-Meters	Visual Alarm	Off
Video	Remote Alarm Monitoring	Off
Audio	IRE Trigger Level	940
Marker	Audio Trigger Time	5s
System	UMD Display	Source ID
Alarm	UMD Color	White
OSD	UMD Position	Bottom
GPI	Audio Meter	Vertical
Display Alignment	Select Alarm Area	
System Status	RS422 Address	1
Support	Baud Rate	9600.00
	Parity	None

Alarm Menu Functions (continued)

- **Baud Rate**
  Sets the RS422 baud rate. This should be left at the default 9600 value unless otherwise specified by Flanders Scientific's support department.
- **Parity**
  Sets Parity for RS422 communication. This should be left at the default None position unless otherwise specified by Flanders Scientific's support department.

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OSD Menu

OSD Menu Organization

Main Menu	OSD	
Function	Status Display	5 Sec.
Scopes & VU-Meters	Menu Pos.	Top Right
Video	Status Pos.	Top Left
Audio	Rotatry Pos.	Bottom
Marker	Source ID	Off
System	Source ID Position	Bottom
Alarm	Source ID Character	CAM 1
OSD	Time Code	VITC 1
GPI	Time Code Position	Top
Display Alignment		
System Status		
Support		

OSD (On Screen Display) Menu Functions

- **Status Display**
  Toggles settings for pop up window indicating resolution & frame rate of source when input button is pressed or a new signal type is routed to monitor. Setting this option to Off turns the Status Display function completely off, setting to 5 Sec. enables a 5 Second onscreen status display when the input button is pressed or source format is changed, and setting to On leaves the Status Display onscreen permanently.
- **Menu Pos.**
  Changes position of onscreen menu between three choices: Center, Top Left, or Top Right.
- **Status Pos.**
  Changes position of onscreen status display window. Select from Top Left, Top Right, Bottom Left, Bottom Right, or Center.
- **Rotary Pos.**
  Changes position of onscreen window indicating status of any rotary knob (Volume, Contrast, etc.) during adjustment. Select from Top, Center, or Bottom.
- **Source ID**
  Allows you toggle source ID function on/off. The Source ID function can be used to set a manual onscreen label of up to 5 characters. This is often used to allow for the labeling of a monitor as PGM, PVM, CAM, etc. without using placards or tape.
- **Source ID Position**
  Changes position of onscreen Source ID function.
- **Source ID Character**
  Allows you to customize text for Source ID label using enter, up, and down buttons.
- **Time Code**
  Allows you to select whether to display Time Code on screen pulled from an HD/SD-SDI signal. Select between Off, LTC, VITC 1, or VITC 2. Please note that Time Code cannot be display at the same time as Scopes, Markers, or other onscreen ancillary functions.
- **Time Code Position**
  Use this toggle to change the onscreen position of Time Code.

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GPI Menu

GPI Menu Organization

This menu allows you to set 7 assignable functions for remote control via the GPI interface on the back of the monitor (RJ-45 connector labeled GPI). Simply select one of the GPI slots, 1 through 7, and press enter to generate a list of available functions that can be toggled using the GPI interface.

Main Menu	GPI	
Function	GPI 1	Keyboard Locking
Scopes & VU-Meters	GPI 2	SDI 2 Input
Video	GPI 3	Red Tally
Audio	GPI 4	Green Tally
Marker	GPI 5	UNDEF
System	GPI 6	Toggle Back Light
Alarm	GPI 7	DVI Input
OSD		
GPI		
Display Alignment		
System Status		
Support		

GPI Pin Assignment & Wiring

8◄——1

When looking at the GPI RJ-45 Connector located on the back of the monitor the pins are arranged 1 through 8 from right to left. This GPI interface is a contact closure based system and **PIN 5** is always the ground. The GPI numbering on the GPI menu corresponds to the physical Pin assignments as follows:

Menu—RJ-45 Pin

- GPI1—Pin 1
- GPI2—Pin 2
- GPI3—Pin 3
- GPI4—Pin 4
- GPI5—Pin 6
- GPI6—Pin 7
- GPI7—Pin 8

To prevent conflicts between menu toggles and GPI commands some features such as the marker selection toggle must be set to GPI in their respective menus (i.e. Marker Menu) in order to function properly.

If using FSI's GPI Keypad Lock to lockout the monitor's keypad the Keyboard Locking function must be set to GPI 1.

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Audio Menu

Audio Menu Organization

Main Menu	Audio	
Function	SDI 1 Audio	Digital CH1&2
Scopes & VU-Meters	SDI 2 Audio	Digital CH1&2
Video	Component Audio	Analog
Audio	CVBS Audio	Analog
Marker	DVI-D Audio	Analog
System	DVI-A Audio	Analog
OSD	Audio Sync	Signal Clock
GPI		
Display Alignment		
System Status		
Support		

Audio Menu Functions

- **SDI 1 Audio**
  Allows you to select what audio source should be active (audible) when SDI 1 is the selected video input. You may select any single channel or stereo pair of embedded audio (i.e. Digital Channel 1, 1&2, 3&4, etc.), Analog Audio (from minijack input), or No Sound. The active stereo pair selected here will be the stereo pair shown when the Audio Phase Meter is activated on the SDI 1 Input.
- **SDI 2 Audio**
  Allows you to select what audio source should be active (audible) when SDI 2 is the selected video input. You may select any single channel or stereo pair of embedded audio (i.e. Digital Channel 1, 1&2, 3&4, etc.), Analog Audio (from minijack input), or No Sound. The active stereo pair selected here will be the stereo pair shown when the Audio Phase Meter is activated on the SDI 2 Input.
- **Component Audio**
  Allows you to select between Analog Audio input (via minijack connector) or No Sound when Component Video is the selected video input.
- **CVBS Audio**
  Allows you to select between Analog Audio input (via minijack connector) or No Sound when Composite Video is the selected video input.
- **DVI-D Audio**
  Allows you to select between Analog Audio input (via minijack connector) or No Sound when DVI-Digital is the selected video input.
- **DVI-A Audio**
  Allows you to select between Analog Audio input (via minijack connector) or No Sound when DVI-Analog is the selected video input.
- **Audio Sync**
  Choose between Signal Clock or Internal Clock for Audio Sync. Some embedded audio sources may have a poor quality signal clock that may lead to audio distortion. Switching to Internal Clock can help to eliminate or minimize such distortion.

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Display Alignment Menu

Display Alignment Menu Organization

Main Menu	Display Alignment	
Function	Start Display Alignment	
Scopes & VU-Meters	Reset Factory Alignment	
Video	Red Gain	50
Audio	Green Gain	50
Marker	Blue Gain	50
System	Red Bias	50
Alarm	Green Bias	50
OSD	Blue Bias	50
GPI	Color Space	Rec 709
Display Alignment	Video Clipping	Off
System Status	Update Firmware	
Support		

***NOTE: All FSI Monitors are precisely calibrated before shipping with NIST traceable Color Analyzers specifically setup to measure the model in question. However, if you would manually like to adjust the white balance of the monitor you may do so by using the RGB Gain and Bias adjustment. Please DO NOT use the Reset Factory Alignment or Start Display Alignment functions unless asked to do so by an authorized FSI service representative.**

Display Alignment Menu Functions

- **Start Display Alignment**

  FSI sells/rents an optional automatic alignment kit composed of our passive color analyzer adapter and a compatible color analyzer. If you have this kit follow these simple steps to realign your monitor to factory specifications:

  1. Place your color analyzer in front of the display.
  2. Plug the color analyzer into the monitor using the passive serial adapter.
  3. Select the appropriate offset matrix (monitor model) from the color analyzer body.
  4. Highlight the Start Display Alignment menu item on the monitor and press enter. The rest of the process is automatic and typically takes about 25 minutes (after monitor is warmed up) to complete.

  DO NOT ACTIVATE THE START DISPLAY ALIGNMENT FUNCTION UNLESS YOU HAVE THE APPROPRIATE AUTOMATIC ALIGNMENT KIT AS IT MAY RESULT IN THE LOSS OF YOUR ALIGNMENT DATA.

- **Reset Factory Alignment**

  The Factory Alignment Data is a backup set of alignment data based on average values for your monitor model. This data is usually not as precise as the individually alignment data stored in your monitor upon delivery or programmed during a realignment. However, it should provide a suitable default alignment should the stored automatic alignment results be accidentally deleted or overwritten. Before resetting to Factory Alignment we strongly suggest you contact an authorized FSI service representative.

- **Red/Green/Blue Gain & Bias**

  These settings allow you to manually adjust the white balance of the monitor. We suggest using a 100% White Field for Gain adjustment and a 30 to 40IRE grey field for Bias adjustment.

- **Color Space (*LM-2450W, LM-2460W, LM-2461W, & LM-2470W only)**

  The LM-2450W, LM-2460W, LM-2461W, & LM-2470W are wide gamut LCD monitors with the ability to work in several different color spaces. Select from available option to instantly change the active color space.

- **Video Clipping**

  Setting Video Clipping to On will clip all levels exceeding legal broadcast limits. With Video clipping On you can see how source content will look if clipped within legal broadcast limits. Setting Video Clipping to Off will show you the full range of levels onscreen, this is the recommended operating mode.

- **Update Firmware**

  If you are running version 9.16 firmware or later this menu item will be visible on the display alignment menu. Please follow the instructions provided on the Firmware Update site to update your monitor. If you are running a firmware version earlier than 9.16 this menu item will not be present and you must first update your monitor with the traditional program based updater before this menu item will appear.

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Monitor Specifications

Model	LM-0750W	LM-0950W	LM-1760W	LM-1760WF	LM-2140W	LM-2340W	LM-2461W
PANEL SPECIFICATIONS							
Screen Size	7"	8.9"	17"	17"	21.5"	23"	24"
Resolution	800x480	1024x600	1366x768	1366x768	1920x1080	1920x1080	1920x1200
Aspect Ratio	15:9	17:10	16:9	16:9	16:9	16:9	16:10
Panel Bit Depth (Color)	8 Bit (16.7M)	8 bit (16.7M)	8 Bit (16.7M)	8 Bit (16.7M)	8 Bit (16.7M)	8 Bit (16.7M)	10 Bit-FRC (1.073 Billion)
Processing	10 Bit	10 Bit	10 Bit	10 Bit	10 Bit	10 Bit	10 Bit
Contrast Ratio	500:1	700:1	900:1	900:1	1000:1	1000:1	1100:1
Max Color Gamut	60%NTSC	62%NTSC	74%NTSC	74%NTSC	72%NTSC / 99.5% Rec 709	72% NTSC / 99.5% Rec 709	102%NTSC
Backlight	White LED	White LED	EEFL	EEFL	White LED	White LED	Wide Gamut CCFL
Max Luminance	300nit	300nit	350nit	350nit	250nit	250nit	350nit
Viewing Angle (typ)	160°	176°	178°	178°	178°	178°	178°
INPUTS							
1 x DVI-I	DVI-I (Analog/Digital)	DVI-I (Analog/Digital)	DVI-I (Analog/Digital)	DVI-I (Analog/Digital)	DVI-I (Analog/Digital)	DVI-I (Analog/Digital)	DVI-I (Analog/Digital)
2 x BNC	HD/SD-SDI	3Gbps/HD/SD-SDI	HD/SD-SDI	HD/SD-SDI	3Gbps/HD/SD-SDI	3Gbps/HD/SD-SDI	3Gbps/HD/SD-SDI
1 x BNC	Composite (on Y Comp. In)	(Composite (on Y Comp. In)	Composite	Composite	Composite	Composite	Composite
3 x BNC	Component (YPbPr/RGB)	Component (YPbPr/RGB)	Component (YPbPr/RGB)	Component (YPbPr/RGB)	Component (YPbPr/RGB)	Componen (YPbPr/RGB)	Component (YPbPr/RGB)
2 x BNC* (Shared w/SDI)	*Optional 3Gbps SDI		*Optional 3Gbps SDI	*Optional 3Gbps SDI			
OUTPUTS							
2 x BNC	n/a	n/a	HD/SD-SDI	HD/SD-SDI	3Gbps/HD/SD-SDI	3Gbps/HD/SD-SDI	3Gbps/HD/SD-SDI
1 x BNC	HD/SD-SDI	3Gbps/HD/SD-SDI	Composite	Composite	Composite	Composite	Composite
3 x BNC	n/a	n/a	Component (YPbPr/RGB)	Component (YPbPr/RGB)	Component (YPbPr/RGB)	Component (YPbPr/RGB)	Component (YPbPr/RGB)
2 x BNC* (Shared w/SDI)	*1 out with 3Gbps Option	n/a	*Optional 3Gbps SDI	*Optional 3Gbps SDI			
AUDIO							
Audio Disembedding	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Audio Level Meters (16 channels)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Internal Speakers	2	2	2	2	2	2	2
Audio In (mini-phono)	n/a	n/a	1	1	1	1	1
Audio Out (mini-phone)	1	1	1	1	1	1	1
SUPPORTED SDI FORMATS							
ITU-R BT.656 (PAL)	576i (50)						
SMPTE-125M	480i (59.94)						
SMPTE-274M	1080i (60/59.94/50) 1080p (30/29.97/25/24/24sF/23.98/23.98sF)						
SMPTE-296M	720p (60/59.94/50/30/29/25/24/23.98)						
2K	2048x1080 (23.98PsF/24PsF/23.98p/24p)						
SMPTE-425M*	*Optional 3Gbps SDI	Standard (Level A & B)	*Optional 3Gbps SDI		Standard (Level A & B)		
SUPPORTED DVI-I FORMATS							
DVI-Analog & DVI-Digital	VGA (640x480), NTSC(720x480), SVGA (800x600), XGA (1024x768), SXGA (1280x1024)						
DVI Digital Only	1280x720, 1440x900, 1920x1080, *1920x1200 (LM-2461W Only)						
FEATURES							
Rack Mount Kit	Available (Single or Dual)	Available (Single or Dual)	Standard	Optional	Optional	Optional	Optional
Desktop Stand	n/a	Optional	Standard	Optional	Stnadard	Standard	Standard
External Mounting Points	1/4" x 20 top & bottom	1/4" x 20 top and bottom	100mm VESA	100mm VESA	100mm VESA	100mm VESA	100mm VESA
VESA to Light Stand Mount	n/a	n/a	Optional	Standard	Optional	Optional	Optional
Carrying Bag with Integrated Hood	Optional	Optional	Optional	Standard	n/a	n/a	n/a
Clear Protective Panel Cover	Optional (CPC 7)	Optional (CPC 9)	Optional (CPC 17)	Standard (2 x CPC 17)	Optional (CPC 21)	Optional (CPC 23)	Optional (CPC 24)
12 Mode Scopes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Measurement Function	Yes	Yes	Yes	Yes	Yes	Yes	Yes
H/V Delay	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reverse Scan	No	Yes	No	No	No	No	No
Timecode Display SD/HD-SDI)	(LTC, VITC 1, VITC 2)	(LTC, VITC 1, VITC 2)	(LTC, VITC 1, VITC 2)	(LTC, VITC 1, VITC 2)	(LTC, VITC 1, VITC 2)	(LTC, VITC 1, VITC 2)	(LTC, VITC 1, VITC 2)
Color Fidelity Engine	No	No	No	No	No	No	Yes (64x64x64 3D LUT)
Overscan	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1:1 Pixel Mapping of SD/720/1080	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Picture by Picture Freeze Frame	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Blue Only Mode	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Monochrome Mode	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3D LUT Color Space Selection	n/a	n/a	n/a	n/a	n/a	n/a	SMPTE C/EBU/REC709/DCI-P3
Color Temperature Select	3200K, 5000K, 5600K, 6500K, 9300K						
Gamma Selection	Instantly adjustable between 1.0 / 1.8 / 2.0 / 2.2 / 2.35 / 2.4 / 2.6 / 2.8						
SD Aspect Ratio Selection	4:3 or Anamorphic						
Tally Lights	3 Color Front & Rear (Talent)		Red/Green/Amber				
POWER							
AC Input	Standard with Adapter	Standard with Adapter	Standard	Standard	Standard	Standard	Standard
DC Input	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Battery Plate	V-Mount or Gold Mount	V-Mount or Gold Mount	n/a	n/a	n/a	n/a	n/a
Power Requirement	12 VDC	12 VDC	100~240 VAC / 24 VDC	100~240 VAC / 12 VDC	100~240 VAC / 12 VDC	100~240 VAC / 12 VDC	100~240 VAC / 24 VDC
DC Power Consumption (Appx.)	15 Watts	15 Watts @ 120 cd/m^2 17 Watts @ 275 cd/m^2	44 Watts	39 Watts @ 120 cd/m^2 53 Watts @ 205 cd/m^2	28 Watts @ 120 cd/m^2 37 Watts @ 250 cd/m^2	30 Watts @ 120 cd/m^2 40 Watts @ 250 cd/m^2	50 Watts
Energy Saving Mode	No Load Power Consumption < 0.75W						
PHYSICAL CHARACTERISTICS							
Weight (without stand)	3.0 lbs	3.0 lbs	10.2 lbs	10.2 lbs	9 lbs	10 lbs	15.8 lbs
Weight with Basic Desktop Stand	n/a	n/a	14.4 lbs	N/A	11.2 lbs	12.5 lbs	19.8 lbs
Weight in Carrying Bag with Hood	4.6 lbs	TBD	n/a	17.5 lbs	n/a	n/a	n/a
Die Cast Aluminum Frame	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PRICE	$1,995	$2,795	$2,495	$2,795	$2,495	$2,995	$4,995

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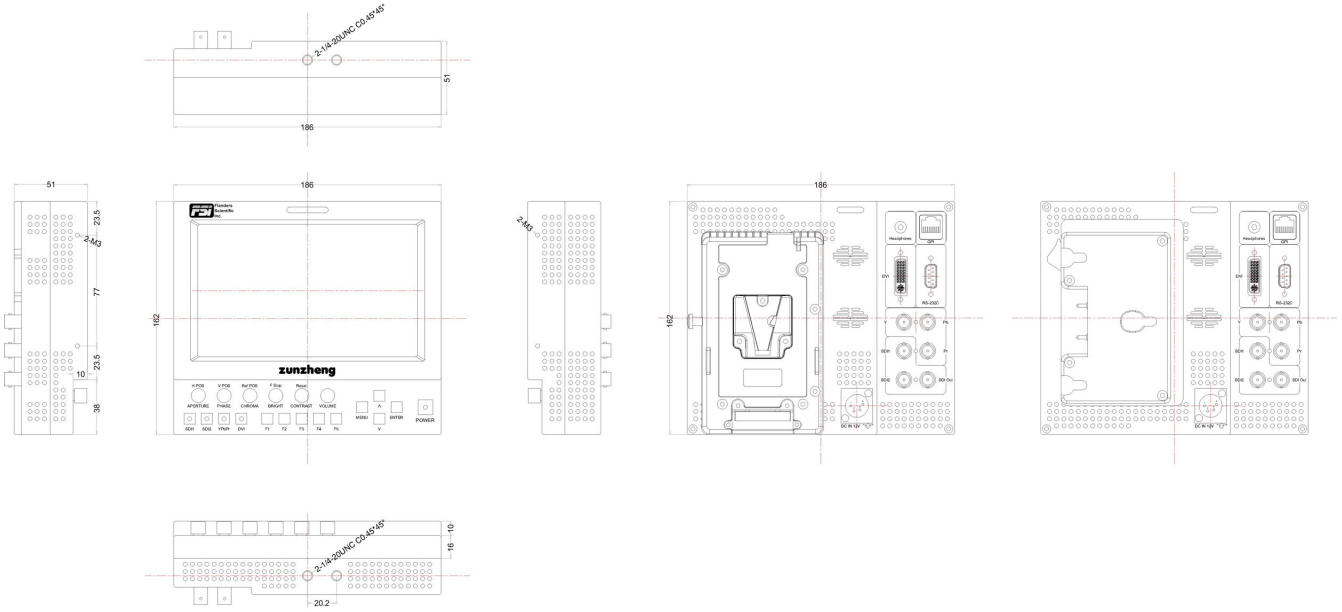
Monitor Diagrams

LM-0750W



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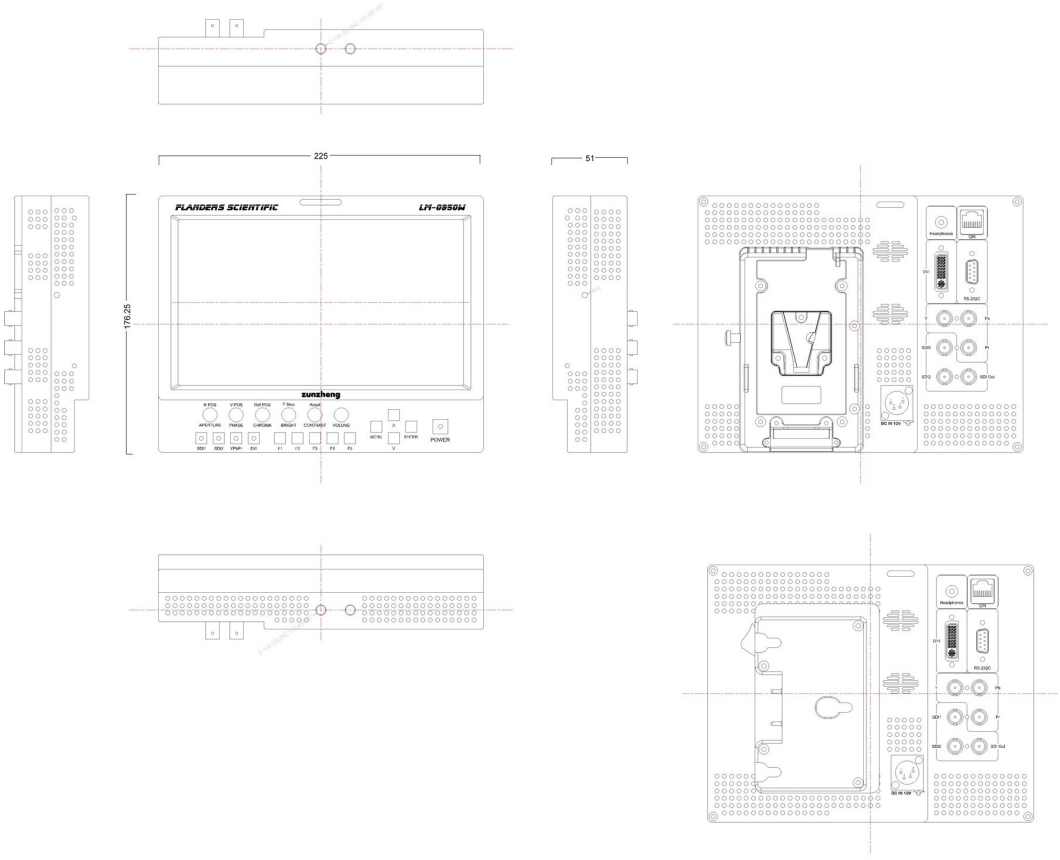
Monitor Diagrams

LM-0950W



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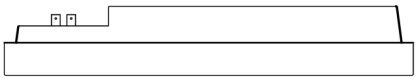
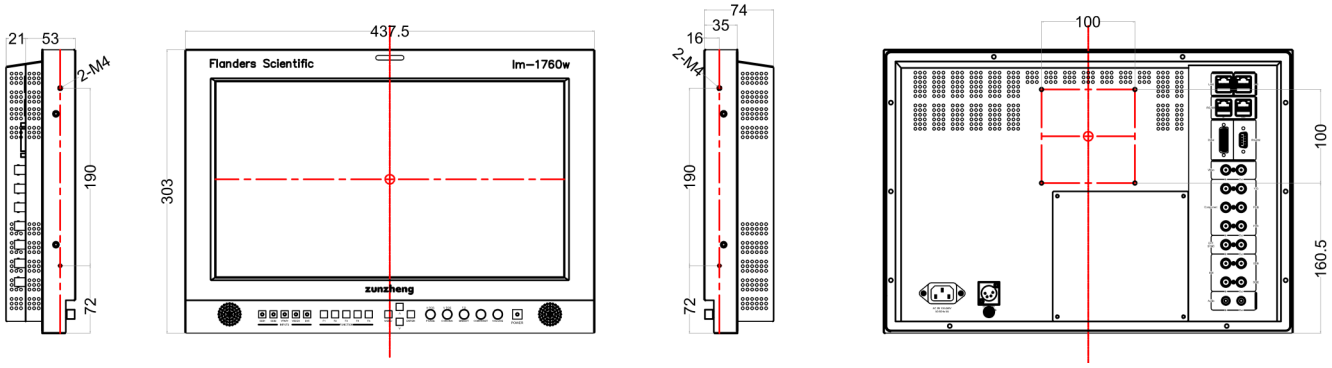
Monitor Diagrams

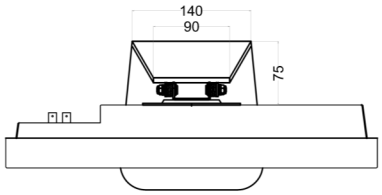
LM-1760W / LM-1760WF

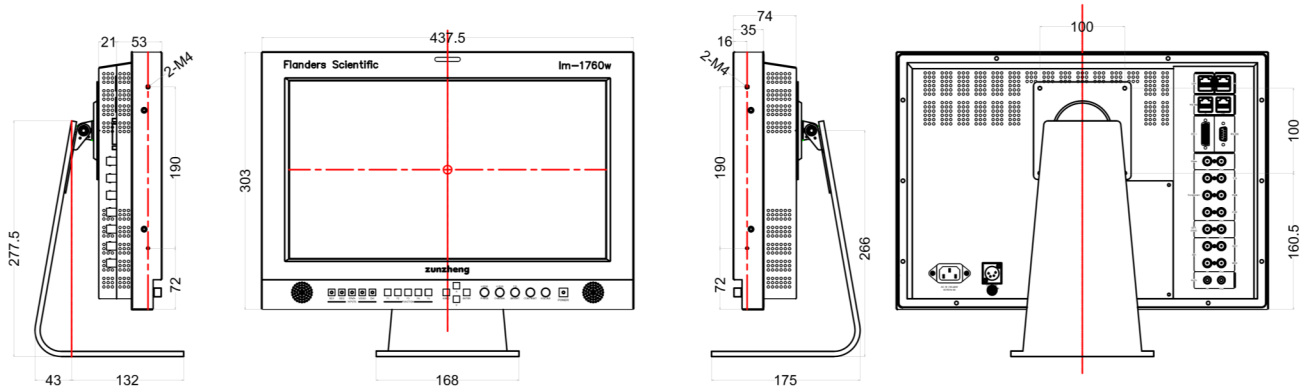
Without Stand





With Basic Desktop Stand





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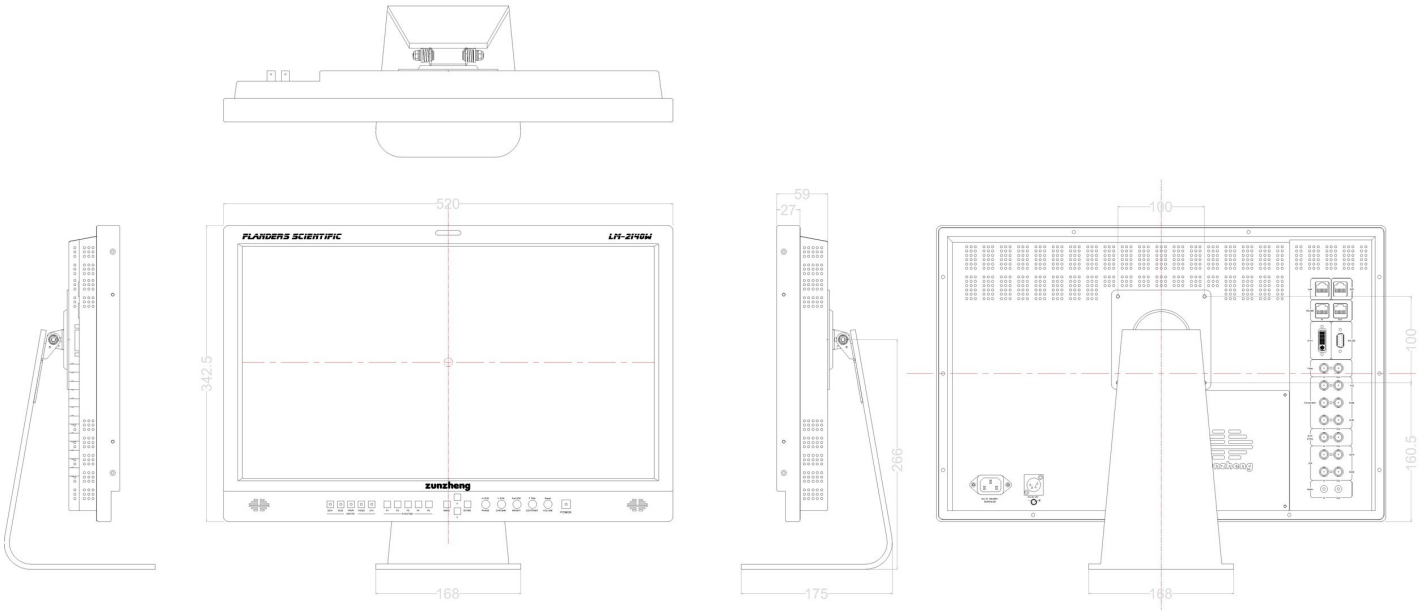
Monitor Diagrams

LM-2140W

Without Stand

With Basic Desktop Stand



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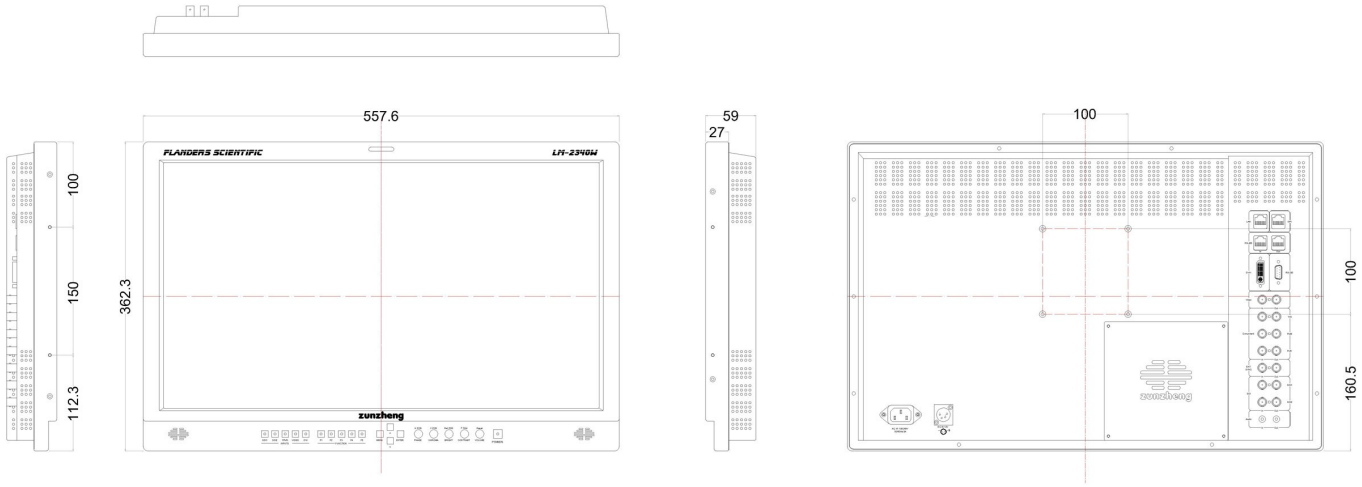
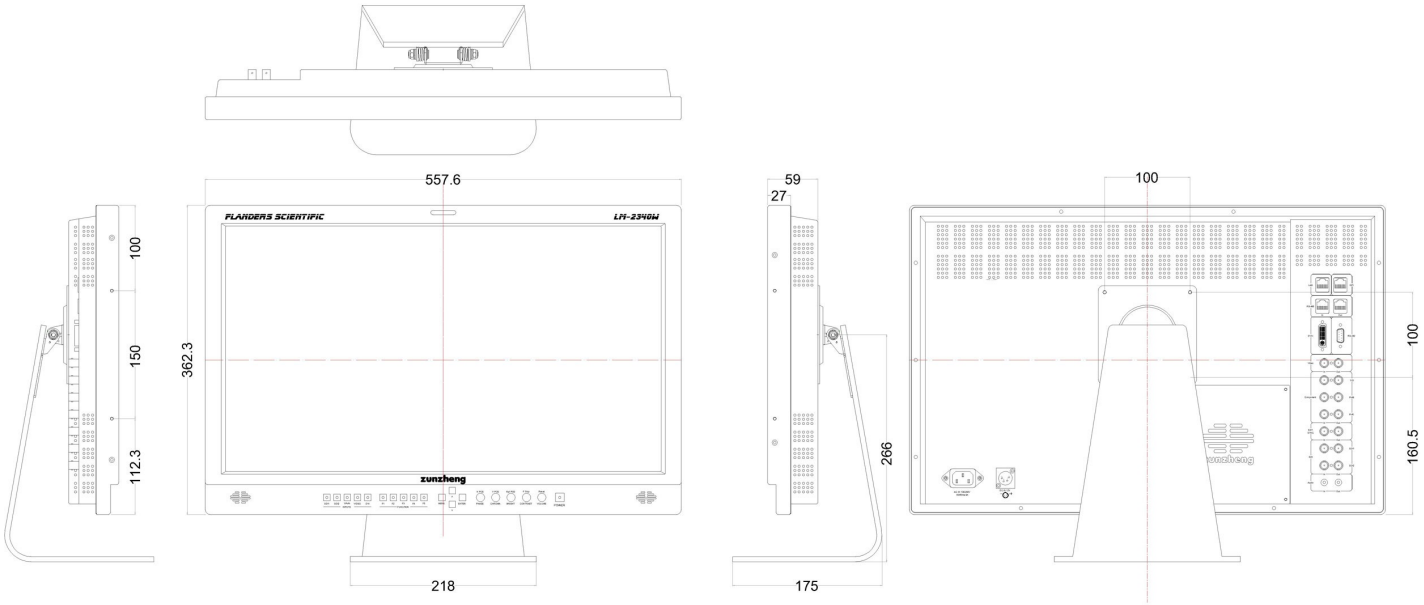
Monitor Diagrams

LM-2340W

Without Stand



With Basic Desktop Stand



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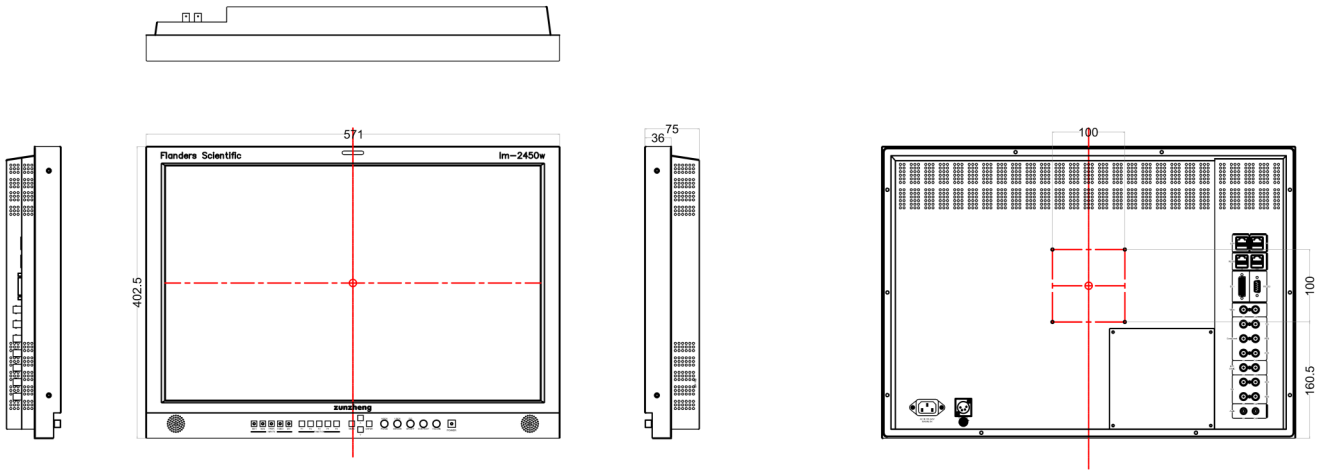
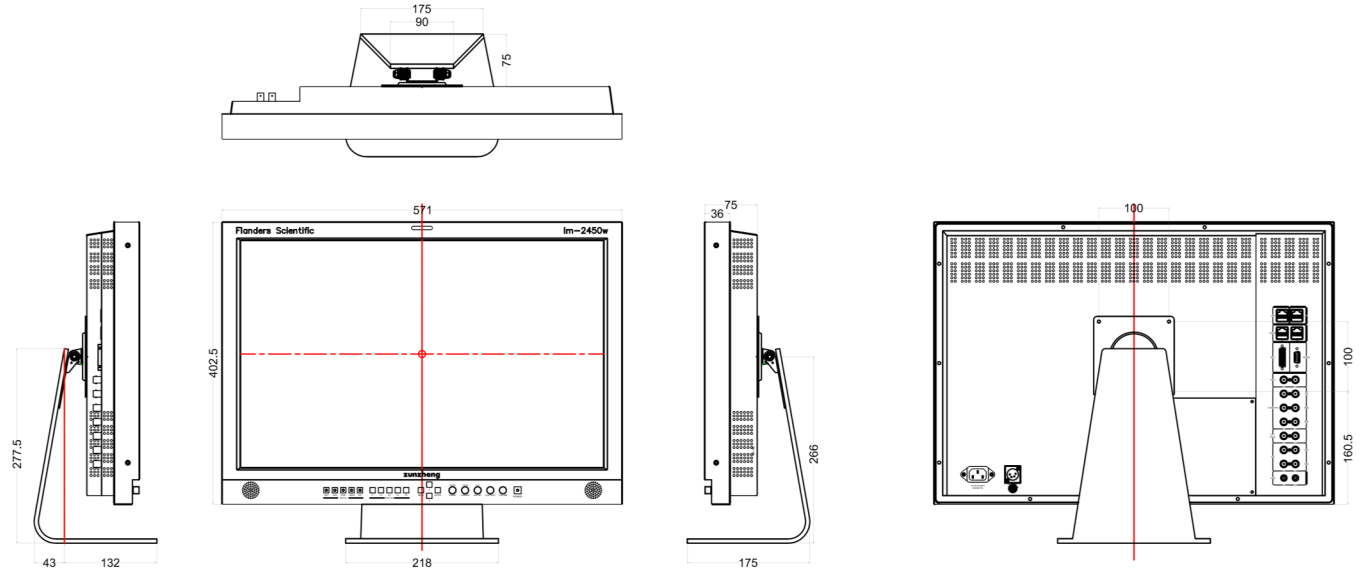
Monitor Diagrams

LM-2461W

Without Stand



With Basic Desktop Stand



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